

SEQUENCE LISTING

<110> GROSJEAN-COURNOYER, MARIE-CLAIRE
 DENFERT, CHRISTOPHE DIDIER
 FIRON, ARNAUD
 VILLALBA, FRANCOIS
 LEBRUN, MARC-HENRI
 BEFFA, ROLAND

<120> MUTAGENESIS OF ASPERGILLUS FUNGI AND IDENTIFICATION OF
 GENES ESSENTIAL FOR GROWTH

<130> 05394.0021

<140> 10/507,416

<141> 2004-09-13

<150> PCT/IB03/01374

<151> 2003-03-13

<150> 60/363,543

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<170> PatentIn Ver. 3.3

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Gly	Val	Ala	Cys	Ile	Lys	Pro	Val	Glu	Ser	Leu	Pro	Gln	Lys	Glu	Ser	20	25	30	
Gln	Ser	Glu	Asn	Pro	Tyr	Glu	Val	Thr	Lys	Glu	Asp	Lys	Val	Gln	Pro	35	40	45	
Glu	Asn	Leu	Pro	Pro	Ala	Gln	Ile	Ser	Leu	Thr	Asp	Cys	Leu	Ala	Cys	50	55	60	
Ser	Gly	Cys	Val	Thr	Ser	Ala	Glu	Ala	Val	Leu	Ile	Ser	Leu	Gln	Ser	65	70	75	80
His	Thr	Glu	Val	Leu	Asn	Thr	Leu	Asp	Ser	Asp	Gly	Arg	Ile	Phe	Val	85	90	95	
Ala	Ser	Val	Ser	Pro	Gln	Val	Arg	Ala	Ser	Leu	Ala	Ala	Thr	Tyr	Gly	100	105	110	
Ile	Thr	Glu	Arg	Glu	Ala	Lys	Tyr	Met	Ile	Asp	Gln	Phe	Leu	Met	Gly	115	120	125	
Pro	His	Gly	Leu	Arg	Ala	Gly	Gly	Lys	His	Gly	Asn	Gly	Phe	Thr	Trp	130	135	140	
Val	Val	Asp	Thr	Asn	Val	Met	Arg	Glu	Ala	Val	Leu	Ala	Leu	Thr	Ala	145	150	155	160
Asp	Glu	Val	Thr	Ser	Ser	Leu	Leu	Ser	Thr	Gly	Ser	Gly	Ser	Leu	Pro	165	170	175	
Lys	Ser	Pro	Ile	Leu	Ser	Ser	Ala	Cys	Pro	Gly	Trp	Ile	Cys	Tyr	Ala	180	185	190	
Glu	Lys	Thr	His	Pro	Phe	Ile	Leu	Pro	His	Leu	Ser	Arg	Leu	Lys	Ser	195	200	205	
Pro	Gln	Ala	Leu	Ser	Gly	Thr	Phe	Leu	Lys	Ser	Val	Leu	Ser	Lys	Ala	210	215	220	
Leu	Gly	Val	Pro	Pro	Ser	Gln	Ile	Trp	His	Leu	Ala	Ile	Met	Pro	Cys	225	230	235	240
Phe	Asp	Lys	Lys	Leu	Glu	Ala	Ser	Arg	Glu	Glu	Leu	Thr	Asp	Ile	Ala	245	250	255	
Trp	Ala	Ser	Thr	Phe	Thr	Gln	Ser	Gln	Thr	Thr	Pro	Val	Arg	Asp	Val	260	265	270	
Asp	Cys	Val	Ile	Thr	Thr	Arg	Glu	Leu	Leu	Thr	Leu	Ala	Thr	Ala	Arg	275	280	285	
Gly	Leu	Ser	Leu	Pro	Asn	Leu	Pro	Leu	Lys	Pro	Leu	Pro	Ala	Ser	Cys	290	295	300	

Leu Thr Pro Phe Pro Asp Gln Ala Leu Glu Ser Phe Leu Phe Ser Lys
 305 310 315 320
 Ser Ser Ser Gly Gln Thr Val Glu Ser Gly Thr Ser Gly Gly Tyr Leu
 325 330 335
 His His Val Leu Gln Ile Phe Gln Ala Arg Asn Pro Gly Ser Lys Ile
 340 345 350
 Val Thr Gln Arg Gly Arg Asn Ala Asp Val Val Glu Tyr Val Leu Met
 355 360 365
 Ser Ser Gly Asp Glu Pro Leu Phe Arg Ala Ala Arg Tyr Tyr Gly Phe
 370 375 380
 Arg Asn Ile Gln Asn Leu Val Arg Lys Leu Lys Pro Ala Arg Val Ser
 385 390 395 400
 Arg Leu Pro Gly Ala Lys Pro Gln Ala Val Ser Ser Ser Ala Asn Arg
 405 410 415
 Arg Gln Pro Met Ser Arg Asn Ala Ala Pro Ala Gly Thr Gly Ala Asp
 420 425 430
 Tyr Ala Tyr Val Glu Val Met Ala Cys Pro Gly Gly Cys Thr Asn Gly
 435 440 445
 Gly Gly Gln Ile Arg Ile Glu Asp Ala Arg Glu Ala Val Pro Asn Ala
 450 455 460
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 465 470 475 480
 Pro His Glu Gln Arg Ala Trp Leu Ala Arg Val Asp Glu Ala Tyr Tyr
 485 490 495
 Ser Ala Asp Ser Asp Ser Glu Gly Ser Val Thr Thr Glu Pro Val Ser
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 Glu Lys
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<210> 7

<211> 942

<212> DNA

<213> *Aspergillus fumigatus*

<400> 7

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tccgtgtctc gtacgtctaa ccccttgcca accctcattg actatgcctg cgaattgttt 240
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tcccggggaa gaaaatggac gtgagtatta cttcacaact aaagaagatt tcctggatct 360

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<210> 8

<211> 600

<212> DNA

<213> *Aspergillus fumigatus*

<400> 8

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gtgtctcata ccactcgagc tccccgtccc ggggaagaaa atggacgtga gtattacttc 180
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ttggaatatg cggcgcagcc tggctctcat gataagattg tcgtgaacga tgacctggag 540
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<210> 9

<211> 200

<212> PRT

<213> *Aspergillus fumigatus*

<400> 9

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Pro Ser Gly Thr Gly Lys Ser Thr Leu Leu Lys Arg Leu Phe Ala Glu
      20              25              30

Tyr Pro Asp Thr Phe Asp Leu Ser Val Ser His Thr Thr Arg Ala Pro
      35              40              45

Arg Pro Gly Glu Glu Asn Gly Arg Glu Tyr Tyr Phe Thr Thr Lys Glu
      50              55              60

Asp Phe Leu Asp Leu Val Ser Lys Asn Ala Phe Ile Glu His Ala Gln
      65              70              75              80

Phe Gly Gly Asn Tyr Tyr Gly Thr Thr Val Gln Ala Val Lys Asp Val
      85              90              95

Ala Gln Lys Gly Lys Ile Cys Val Leu Asp Ile Glu Met Arg Gly Val
      100              105              110

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Lys Gln Val Lys Arg Thr Asp Leu Asp Ala Arg Phe Leu Phe Leu Ala
 115 120 125
 Pro Pro Ser Leu Glu Glu Leu Glu Lys Arg Leu Arg Gly Arg Ala Thr
 130 135 140
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 145 150 155 160
 Leu Glu Tyr Ala Ala Gln Pro Gly Ser His Asp Lys Ile Val Val Asn
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 Asp Asp Leu Glu Lys Ala Tyr Lys Glu Leu Arg Asp Trp Ile Val Asp
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<210> 10

<211> 2059

<212> DNA

<213> *Aspergillus fumigatus*

<400> 10

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caaccaagct ttcggcactg ggagaaacct cgatgggttc atcatcagta aatgtgatac 1920
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<210> 11
<211> 1923
<212> DNA
<213> Aspergillus fumigatus

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aag                                     1923

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<210> 12
<211> 641
<212> PRT
<213> Aspergillus fumigatus

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<400> 12
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Ser Lys Ser Tyr Ala Pro Val Gly Ala His Val Val Asn Ser Leu Ile
                20                25                30

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Asn	Asp	Val	Phe	Ile	Glu	Glu	Lys	Val	Arg	Ala	Gln	Asn	Gln	Ala	Ala		
		35					40					45					
Ser	Ser	Ala	Ala	Pro	Ile	Tyr	Lys	Lys	Glu	Lys	Tyr	Thr	Leu	Lys	Trp		
		50				55					60						
Lys	Gln	Val	Lys	Asp	Phe	Asn	Leu	Ile	Phe	Val	Ala	Val	Tyr	Gln	Ser		
	65				70					75					80		
Leu	Leu	His	Leu	Gly	Trp	Ile	Asp	Lys	Leu	Leu	Asp	Asn	Val	Ser	Thr		
				85					90					95			
Ile	Phe	Ile	Asp	Leu	Tyr	Lys	Asp	Glu	Leu	Arg	Ser	Thr	Arg	Ala	Arg		
			100					105					110				
Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Lys	Tyr	Phe	Asp	Gln	Gln	Val	Arg	Glu		
		115					120					125					
Leu	Glu	Asp	Asn	Ala	Gly	Ala	Pro	Thr	Ser	Glu	Ser	Leu	Val	Val	Glu		
	130					135					140						
Ile	Asn	Glu	Arg	Lys	Asp	Pro	Leu	Val	Ser	Ser	Asp	Asn	Gly	Gly	Pro		
	145				150					155					160		
Pro	Pro	Pro	Pro	Val	Pro	Val	Ala	Gln	Gly	Val	Ala	Thr	Ser	Asp	Glu		
				165					170					175			
Gly	Ser	Pro	Pro	Gln	Thr	Pro	Asp	Leu	Ser	Arg	Ser	Ser	Thr	Pro	Ile		
			180					185					190				
Ser	Gly	His	Leu	Leu	Thr	Ala	Lys	Gly	Gly	Pro	Ala	Gly	Arg	Ala	Ser		
		195					200					205					
Arg	Arg	Ala	Arg	Lys	Ala	Ala	Asn	Ala	Ser	Ala	Thr	Ala	Ser	Ser	Gly		
	210				215						220						
Asp	Glu	Ser	Ile	Arg	Lys	Gly	Lys	Thr	Leu	Lys	Ser	Gly	Lys	Lys	Met		
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Leu	Asp	Tyr	Ser	Ala	Pro	Ala	Asp	Gly	Glu	Asp	Ala	Pro	Ala	Pro	Val		
			260					265					270				
Val	Glu	Ala	Val	Ala	Gln	Glu	Ser	Trp	Gly	Arg	Arg	Thr	Gly	Lys	Gly		
		275					280					285					
Gln	Phe	Val	Leu	Lys	Asp	Leu	Gly	Asp	Glu	Val	His	Ser	Ile	Leu	Glu		
	290					295					300						
Asn	Ala	Asp	His	Glu	Lys	Thr	Lys	Ser	Ser	Ser	Ser	Thr	Gly	Phe	Val		
	305				310					315					320		
Gly	Ser	Gly	Val	Asn	Ala	Leu	Gly	Gly	Phe	Phe	Arg	Asn	Ile	Val	Gly		
				325					330					335			

Gly Lys Val Leu Thr Glu Ala Asp Leu Glu Lys Pro Leu Lys Ala Met
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 Glu Asp His Leu Leu Lys Lys Asn Val Ala Arg Glu Ala Ala Val Arg
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 370 375 380
 Phe Gln Ser Val Asp Ala Ala Leu Arg Ser Ala Met Glu Ser Ser Leu
 385 390 395 400
 Arg Lys Ile Leu Thr Pro Thr Ser Ser Leu Asp Leu Leu Arg Glu Ile
 405 410 415
 Asp Ala Val Arg Ser Pro Thr Ser Lys Gly Gln Ala Pro Arg Pro Tyr
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 Val Ile Ser Ile Val Gly Val Asn Gly Val Gly Lys Ser Thr Asn Leu
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 Ala Ala Cys Asp Thr Phe Arg Ser Gly Ala Val Glu Gln Leu Arg Val
 465 470 475 480
 His Ala Arg Asn Leu Lys Glu Leu Ser Thr Arg Glu Asn Ala Gly Glu
 485 490 495
 Val Glu Leu Tyr Glu Lys Gly Tyr Gly Lys Asp Ala Ala Asn Val Ala
 500 505 510
 Lys Asp Ala Val Glu Tyr Gly Ala Ala Asn His Phe Asp Val Val Leu
 515 520 525
 Ile Asp Thr Ala Gly Arg Arg His Asn Asp Gln Arg Leu Met Ser Ser
 530 535 540
 Leu Glu Lys Phe Ala Lys Phe Ala Lys Pro Asp Lys Ile Phe Met Val
 545 550 555 560
 Gly Glu Ala Leu Val Gly Thr Asp Ser Val Met Gln Ala Arg Asn Phe
 565 570 575
 Asn Gln Ala Phe Gly Thr Gly Arg Asn Leu Asp Gly Phe Ile Ile Ser
 580 585 590
 Lys Cys Asp Thr Val Gly Asp Met Val Gly Thr Leu Val Ser Met Val
 595 600 605
 His Ala Thr Gly Ile Pro Ile Val Phe Leu Gly Val Gly Gln His Tyr
 610 615 620
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<210> 13
 <211> 1564
 <212> DNA
 <213> *Aspergillus fumigatus*

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<210> 14
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 <212> DNA
 <213> *Aspergillus fumigatus*

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<210> 15

<211> 460

<212> PRT

<213> *Aspergillus fumigatus*

<400> 15

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Ser Lys Gly Tyr Gly Pro Ser Leu Thr Pro Lys Asn Ile Ile Asp Phe
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Thr Ala Ser Ala Ile Ser Ser Leu Leu Leu Glu Leu Asp Leu His Leu
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Lys Leu Arg Ser Asp Thr Lys Ala Phe Phe Asp Gly Glu Gly Val Val
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<211> 2376

<212> DNA

<213> *Aspergillus fumigatus*

<400> 16

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<211> 2145

<212> DNA

<213> *Aspergillus fumigatus*

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<210> 18

<211> 715

<212> PRT

<213> *Aspergillus fumigatus*

<400> 18

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      35              40              45

Gly Asp Lys Ala Val Val Gln Tyr Thr Gly Ala Ser Gly Asn Pro Ile
      50              55              60

Phe Gly Leu Ile Asn Ala Val Gln Glu Leu Arg Lys Asp Phe Pro Phe
      65              70              75              80

Leu Asn Ser Lys Asp Glu Lys Leu Glu Asn Glu Trp Leu Ser Gln Leu
      85              90              95

Glu Ala Phe Ala Pro Leu Asp Phe Lys Ala Leu Asp Pro Glu Leu Gln
      100             105             110

Arg Leu Asp Thr His Leu Leu Leu Arg Ser Phe Val Val Gly Tyr Ala
      115             120             125

Leu Ser Thr Ala Asp Ile Ala Leu Trp Gly Ala Ile Arg Gly Asn Arg
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Val Ala Val Ala Ala Ile Lys Lys Gly Ser Leu Val Asn Val Thr Arg
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Glu	Gly	Ala	Ser	Tyr	Asp	Ile	Ala	Leu	Leu	Asn	Thr	Glu	Lys	Gly	Val	195	200	205	
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Tyr	Gln	Trp	Phe	Leu	Asp	Thr	Leu	Lys	Leu	Arg	His	Val	Gln	Ile	Trp	420	425	430	
Asp	Phe	Ala	Arg	Met	Asn	Phe	Ile	Arg	Thr	Leu	Leu	Ser	Lys	Arg	Lys	435	440	445	
Leu	Thr	Lys	Leu	Val	Asn	Gln	Gly	Val	Val	Trp	Gly	Trp	Asp	Asp	Pro	450	455	460	

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<210> 19

<211> 2639

<212> DNA

<213> *Aspergillus fumigatus*

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<211> 2427

<212> DNA

<213> *Aspergillus fumigatus*

<400> 20

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<210> 21

<211> 809

<212> PRT

<213> *Aspergillus fumigatus*

<400> 21

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Gly Arg Leu His Ala Tyr Glu Pro Arg Thr Ala Glu Ala Ser Tyr Leu
      35             40             45

Leu Ala Leu Cys His Leu Gln Asn Gly Gln Val Lys Ala Ala Tyr Asp
      50             55             60

Tyr Ser Arg Asn Phe Gly Ser Arg Gly Thr His Leu Gly Cys Ser Tyr
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Val Phe Ala Gln Ala Cys Leu Asp Leu Gly Lys Tyr Leu Glu Gly Ile
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 Gln His Phe Arg Asn Ala Ala Ser Ile Asn Pro Thr Asn Ala Val Leu
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 Ile Cys Cys Ile Gly Leu Val Leu Glu Lys Met Asn Asn Pro Lys Ala
 690 695 700

Ala Leu Val Gln Tyr Gly Arg Ala Cys Ser Leu Ala Pro His Ser Val
 705 710 715 720

Leu Ala Arg Phe Arg Lys Ala Arg Ala Leu Met Lys Leu Gln Glu Leu
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Lys Leu Ala Leu Ser Glu Leu Lys Ile Leu Lys Asp Met Ala Pro Asp
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Glu Ala Asn Val His Tyr Leu Leu Gly Lys Leu Tyr Lys Met Leu His
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Asp Lys Ala Asn Ala Ile Lys His Phe Thr Thr Ala Leu Asn Leu Asp
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<210> 22

<211> 1836

<212> DNA

<213> *Aspergillus fumigatus*

<400> 22

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1836

<210> 23

<211> 1836

<212> DNA

<213> *Aspergillus fumigatus*

<400> 23

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<210> 24

<211> 611

<212> PRT

<213> *Aspergillus fumigatus*

<400> 24

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Phe Glu Gly Phe Pro Leu Leu Ala Glu Asn Leu Met Ala Lys Ala Leu
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Thr	Arg	Asp	Leu	Leu	Glu	Lys	Ile	Lys	Gln	Met	Pro	Val	Thr	Leu	Pro	85	90	95	
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Pro	Ser	Asp	Ile	Pro	Arg	Val	Pro	Pro	Glu	Leu	Met	Lys	Glu	Leu	Met	305	310	315	320
Glu	Leu	Ser	Glu	Pro	Glu	Arg	Ser	Ser	Arg	Trp	Leu	Arg	Cys	Cys	Phe	325	330	335	
Val	Glu	Asp	Leu	Glu	Cys	Glu	Ile	Thr	Gln	Ile	Ala	Leu	Trp	Gln	Ala	340	345	350	

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 Lys Gly Ile Arg Pro Leu Glu Thr Ala Tyr Thr Phe Glu Gly Phe Pro
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 Tyr Ile Tyr Cys Lys Trp Ala Asp Asn Ser Lys Pro Ser Lys Thr Cys
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 Gln Arg Ala Phe Lys Ser Pro Ala Glu Leu Arg His His Val Phe Thr
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 Glu His Met Asn Leu Lys Pro Thr Glu Thr Pro Gly His Tyr Asn Leu
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 Glu Lys Ala Glu Ser Pro Val His Thr Cys Leu Trp Asp Asn Cys Thr
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 Ala Tyr Lys Ala Ala Leu Val Leu Arg Asn Leu Ala Arg Asn Leu Pro
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 Thr Gly Ile Ala Pro Gln Tyr Asn Gly Leu Ser Trp Lys Lys Ala Val
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 Phe Leu Ser His Arg Pro Lys Ile Ile Glu Ala Trp Asp Arg Asn Arg
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<210> 25

<211> 1542

<212> DNA

<213> *Aspergillus fumigatus*

<400> 25

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<210> 26

<211> 1479

<212> DNA

<213> *Aspergillus fumigatus*

<400> 26

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cggactatgg ataagctctt cctcaacggc agcgcctaca tgattggcaa gatgaatggc 600
gagcactggt acttgtacct gactgaacct cataccatgc tcaccccgcc aacgagcccg 660
ggagccaaga ccgagtttac ggaaacggag accaaggtcc tcagtgtacc ccagggcgct 720
gctctgcaga ctgattcgga ggatgagact ttggaagtct tgatgaccga cttggatgag 780
gagaacgcca agcagttcta cctcgagaat gccactgccg ttgcgagaaa ccgttatcgc 840
aactcaaatt cggagaagag tggccatggt gatgttttca gcaacacttc ctccgatatc 900
agcgattttg actccgacgg aagccaggtt ctgcctccag agttgactac cgagggtcac 960
gcgctcgga ccggtggtct tgaagcctgt ggactttcct ctgtgtatcc taaggagaag 1020
tatcccgatt cgcgcacga tgccctacct ttacaccat gcggtctctc cgccaacggc 1080
gtgattccgc ctctgaggg aaaagctgga acccactact tcacagtaca cgtcactcca 1140
gagccgcaact gttcatatgc gtcccttgag accaacgtac cgcactcgca gaacggccag 1200
actaccgctg gaatcatcaa gcaagtggtc gacatcttca agcctggctg cttcagcgtg 1260
actctcttcg aggccaaagc agcgtgagc caggtcgaag acgagtggaa ggaagccaag 1320
tacctggccg ctcgctcgga cgccaaaatg gaacatgtgg agggatatcg ccgagtggac 1380

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cggattgtcc acgacctcga cggctatgag cttgtcttcc gctattatga acgcctggac 1440
 tggaaagggg gggcccctcg gctgggagag gagagatct 1479

<210> 27
 <211> 493
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 27
 Met Val Tyr Ile Gly Ile Pro Lys Asn Tyr Thr Ala Ser Pro Ser Ser
 1 5 10 15
 Phe Ala Gly Thr Pro Ser Leu Thr Ile Asn Tyr Glu Ala Thr Gln Asp
 20 25 30
 Leu Asp Ser Thr Asn Ala Phe Glu Gly Pro Glu Lys Leu Leu Glu Val
 35 40 45
 Trp Phe Ala Pro Ser Ala Gln Glu Leu Gly Pro Ala Gln Pro Ala Gly
 50 55 60
 Leu Lys Ala Val Pro Glu Glu Ile Trp Lys Asp Met Leu Asp Leu Val
 65 70 75 80
 Asn Cys Gln Val Leu Ser Ile Val Ser Ser Glu Asp Val Asp Ala Tyr
 85 90 95
 Leu Leu Ser Glu Ser Ser Met Phe Val Trp Pro His Lys Leu Ile Leu
 100 105 110
 Lys Thr Cys Gly Thr Thr Thr Leu Leu Ser Gly Leu Pro Arg Ile Leu
 115 120 125
 Glu Ile Ala Ala Leu Phe Gly Gly Phe Pro Lys Ser Thr Ala Pro Ser
 130 135 140
 Arg Gly Ile Ser Val Ala Ala Ala Pro Tyr Arg Val Phe Tyr Ser Arg
 145 150 155 160
 Lys Asn Phe Leu Phe Pro Asp Arg Gln Arg Gly Pro His Arg Ser Trp
 165 170 175
 Arg Asp Glu Val Arg Thr Met Asp Lys Leu Phe Leu Asn Gly Ser Ala
 180 185 190
 Tyr Met Ile Gly Lys Met Asn Gly Glu His Trp Tyr Leu Tyr Leu Thr
 195 200 205
 Glu Pro His Thr Met Leu Thr Pro Pro Thr Ser Pro Gly Ala Lys Thr
 210 215 220
 Glu Phe Thr Glu Thr Glu Thr Lys Val Leu Ser Val Pro Gln Gly Ala
 225 230 235 240
 Ala Leu Gln Thr Asp Ser Glu Asp Glu Thr Leu Glu Val Leu Met Thr
 245 250 255

Asp Leu Asp Glu Glu Asn Ala Lys Gln Phe Tyr Leu Glu Asn Ala Thr
 260 265 270
 Ala Val Ala Glu Asn Arg Tyr Arg Asn Ser Asn Ser Glu Lys Ser Gly
 275 280 285
 His Val Asp Val Phe Ser Asn Thr Ser Ser Asp Ile Ser Asp Phe Asp
 290 295 300
 Ser Asp Gly Ser Gln Val Leu Pro Pro Glu Leu Thr Thr Glu Gly His
 305 310 315 320
 Ala Leu Gly Thr Val Val Ser Glu Ala Cys Gly Leu Ser Ser Val Tyr
 325 330 335
 Pro Lys Glu Lys Tyr Pro Asp Ser Arg Ile Asp Ala Tyr Leu Phe Thr
 340 345 350
 Pro Cys Gly Phe Ser Ala Asn Gly Val Ile Pro Pro Pro Glu Gly Lys
 355 360 365
 Ala Gly Thr His Tyr Phe Thr Val His Val Thr Pro Glu Pro His Cys
 370 375 380
 Ser Tyr Ala Ser Phe Glu Thr Asn Val Pro His Ser Gln Asn Gly Gln
 385 390 395 400
 Thr Thr Ala Gly Ile Ile Lys Gln Val Val Asp Ile Phe Lys Pro Gly
 405 410 415
 Arg Phe Ser Val Thr Leu Phe Glu Ala Lys Pro Ala Leu Ser Gln Val
 420 425 430
 Glu Asp Glu Trp Lys Glu Ala Lys Tyr Leu Ala Ala Arg Arg Thr Ala
 435 440 445
 Lys Met Glu His Val Glu Gly Tyr Arg Arg Val Asp Arg Ile Val His
 450 455 460
 Asp Leu Asp Gly Tyr Glu Leu Val Phe Arg Tyr Tyr Glu Arg Leu Asp
 465 470 475 480
 Trp Lys Gly Gly Ala Pro Arg Leu Gly Glu Glu Arg Ser
 485 490

<210> 28

<211> 637

<212> DNA

<213> *Aspergillus fumigatus*

<400> 28

atgggtcgcg ttagaaccaa ggtaagttac agatgaagca tcatgagtta tcttcaaaaa 60
 agcccaaaaa gagtatcatt tctgacgaaa tgggtttttc ttcaatagac agtcaagagg 120
 tccgccaagg tcatcatcga gcgctactac cccaagttga cgctcgactt tgagaccaac 180
 aagcgtcttt gcgatgagat cgctatcatt gcctccaagc gccttcgcaa caagggtgggc 240
 aatccatcac tgagccgtac aacagtcgga atttgacttg ctgacgaaaa ctagattgct 300
 ggttacacca cccaccttat gaagcgtatc cagcgtggcc ctgtccgcgg tatctctttc 360


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aagctgcagg aggaggagcg tgagcgcaag gatcagtagc ttcctgaggt ttccgctctg 420
gatgtttccc agaccgagtc cggccagctc gatgtcgatg ccgacaccaa ggaccttctc 480
aagtccatgg gcgtaagttc tgttctcaac gcggttggtc gtgggttttaa agcagtcctg 540
taacttatat tgcccactac agttcgacaa tctcaagggtc aacgttgtca acgtctccca 600
acatcagggt caggagcgcc cccgccgctt ccggtag 637

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<210> 29

<211> 417

<212> DNA

<213> *Aspergillus fumigatus*

<400> 29

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atgggtcgcg ttagaaccaa gacagtcaag aggtccgccca aggtcatcat cgagcgctac 60
taccccaagt tgacgctcga ctttgagacc aacaagcgtc tttgcgatga gatcgctatc 120
attgcctcca agcgccttcg caacaagatt gctggttaca ccacccacct tatgaagcgt 180
atccagcgtg gccctgtccg cggatatctt ttcaagctgc aggaggagga gcgtgagcgc 240
aaggatcagt acgttcctga gggttcctgc ctggatgttt ccagaccga gtccggccag 300
ctcgatgtcg atgccgacac caaggacctt ctcaagtcca tgggcttcga caatctcaag 360
gtcaacggtg tcaacgtctc ccaacatcag gttcaggagc gccccgcgcg cttccgg 417

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<210> 30

<211> 139

<212> PRT

<213> *Aspergillus fumigatus*

<400> 30

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Met Gly Arg Val Arg Thr Lys Thr Val Lys Arg Ser Ala Lys Val Ile
  1              5              10              15

Ile Glu Arg Tyr Tyr Pro Lys Leu Thr Leu Asp Phe Glu Thr Asn Lys
      20              25              30

Arg Leu Cys Asp Glu Ile Ala Ile Ile Ala Ser Lys Arg Leu Arg Asn
      35              40              45

Lys Ile Ala Gly Tyr Thr Thr His Leu Met Lys Arg Ile Gln Arg Gly
      50              55              60

Pro Val Arg Gly Ile Ser Phe Lys Leu Gln Glu Glu Glu Arg Glu Arg
      65              70              75              80

Lys Asp Gln Tyr Val Pro Glu Val Ser Ala Leu Asp Val Ser Gln Thr
      85              90              95

Glu Ser Gly Gln Leu Asp Val Asp Ala Asp Thr Lys Asp Leu Leu Lys
      100              105              110

Ser Met Gly Phe Asp Asn Leu Lys Val Asn Val Val Asn Val Ser Gln
      115              120              125

His Gln Val Gln Glu Arg Pro Arg Arg Phe Arg
      130              135

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<210> 31
 <211> 1035
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 31
 atggcggttg gaaagtatgc caattcactt ctattattgt tctgaacgct tttagcatgt 60
 gtctggatac ggtggtttac aggtactgat cccggaacag gaacaagcgc ttgtcgaagg 120
 gcaagaaggg tgttaagaag aggaccgttg atcctttctc caggaaggac gaatactctg 180
 ttaaggtatg tcgacgtgga ctgtgtaagt cgaccgcagc taatctatat caggcgcctt 240
 ccactttcca gatcagagag tatgttgac gcataatgat tgcgaatgcag gataaaggcg 300
 attcacaatg gtagtggaga ttatgctgac tgaattatag tgtcgggaag actctgggtca 360
 accgcaccag tgggtctcaag aacgccaatg actccctgaa gggtcgaatt ttcgagggtct 420
 cgctggctga cctgcagaat gatgaagacc atgctttccg caagggttaag cttcgtgtgg 480
 acgagggttca gggcaagaac tgtttgacca acttccacgg tcttgatttc acaaccgaca 540
 aattgcgatc cctcgtgcgc aagtggcagt cgctgatcga agccatgtca ctgtgaagac 600
 gaccgatgat tatctccttc ggctttttgc tatcgcttc accaagagac gcccgaacca 660
 gattaagaag accacatatg ctcgcttctc tcaaattccg gccatccgca agaagatgat 720
 tgaaatcatg cagagggagg cagccagctg ctctctcgct cagctcactc acaagctcat 780
 tcctgaggtc attggtcgtg agatcgagaa ggctaccag ggaatctatc ctttgagaa 840
 tgtgtgtgac cctgttattc ttactcggga tgaagactaa ctgcaatcta ggtccatatt 900
 cgcaagggtca agcttcttaa ggctcccaag ttcgacctgg gtgcactgct gaatctgcac 960
 ggtgaatcta caaccgatga taagggccac aaggctcgaga gagagttcaa ggagcagggt 1020
 ctcgaaagcg ttttaa 1035

<210> 32
 <211> 768
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 32
 atggcggttg gaaagaacaa gcgcttgtcg aagggcaaga aggggtgttaa gaagaggacc 60
 gttgatcctt tctccaggaa ggacgaatac tctgttaagg cgcttccac tttccagatc 120
 agagatgtcg ggaagactct ggtcaaccgc accagtgggtc tcaagaacgc caatgactcc 180
 ctgaagggtc gaattttcga ggtctcgtg gctgacctgc agaattgatga agaccatgct 240
 ttccgcaagg ttaagcttcg tgtggacgag gttcagggca agaactgttt gaccaacttc 300
 cacggtcttg atttcacaac cgacaaattg cgatccctcg tgcgcaagtg gcagtcgctg 360
 atcgaagcca atgtcactgt gaagacgacc gatgattatc tccttcgggt ttttgctatc 420
 gccttcacca agagacgccc gaaccagatt aagaagacca catatgctcg ttcttctcaa 480
 atccgtgcca tccgcaagaa gatgattgaa atcatgcaga gggaggcagc cagctgctct 540
 ctcgctcagc tcaactcaca gctcattcct gaggtcattg gtcgtgagat cgagaaggct 600
 acccagggaa tctatccttt gcagaatgtc catattcgca aggtcaagct tcttaaggct 660
 cccaagttcg acctgggtgc actgctgaat ctgcacggtg aatctacaac cgatgataag 720
 ggccacaagg tcgagagaga gttcaaggag caggttctcg aaagcgtt 768

<210> 33
 <211> 256
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 33
 Met Ala Val Gly Lys Asn Lys Arg Leu Ser Lys Gly Lys Lys Gly Val
 1 5 10 15
 Lys Lys Arg Thr Val Asp Pro Phe Ser Arg Lys Asp Glu Tyr Ser Val
 20 25 30

Lys Ala Pro Ser Thr Phe Gln Ile Arg Asp Val Gly Lys Thr Leu Val
 35 40 45
 Asn Arg Thr Ser Gly Leu Lys Asn Ala Asn Asp Ser Leu Lys Gly Arg
 50 55 60
 Ile Phe Glu Val Ser Leu Ala Asp Leu Gln Asn Asp Glu Asp His Ala
 65 70 75 80
 Phe Arg Lys Val Lys Leu Arg Val Asp Glu Val Gln Gly Lys Asn Cys
 85 90 95
 Leu Thr Asn Phe His Gly Leu Asp Phe Thr Thr Asp Lys Leu Arg Ser
 100 105 110
 Leu Val Arg Lys Trp Gln Ser Leu Ile Glu Ala Asn Val Thr Val Lys
 115 120 125
 Thr Thr Asp Asp Tyr Leu Leu Arg Leu Phe Ala Ile Ala Phe Thr Lys
 130 135 140
 Arg Arg Pro Asn Gln Ile Lys Lys Thr Thr Tyr Ala Arg Ser Ser Gln
 145 150 155 160
 Ile Arg Ala Ile Arg Lys Lys Met Ile Glu Ile Met Gln Arg Glu Ala
 165 170 175
 Ala Ser Cys Ser Leu Ala Gln Leu Thr His Lys Leu Ile Pro Glu Val
 180 185 190
 Ile Gly Arg Glu Ile Glu Lys Ala Thr Gln Gly Ile Tyr Pro Leu Gln
 195 200 205
 Asn Val His Ile Arg Lys Val Lys Leu Leu Lys Ala Pro Lys Phe Asp
 210 215 220
 Leu Gly Ala Leu Leu Asn Leu His Gly Glu Ser Thr Thr Asp Asp Lys
 225 230 235 240
 Gly His Lys Val Glu Arg Glu Phe Lys Glu Gln Val Leu Glu Ser Val
 245 250 255

<210> 34
 <211> 614
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 34
 cctgtcggag atgatcaaag gcagcacctc gaattttcga ggaacactgc gaatagtttc 60
 aatcatgtat atggacccat tttcccgta ccagaagcaa ttatatgtaa gtggtttttg 120
 cttctggcgg aacgggtcctg tggtgggaaa ttgacggcta tcaatagcgc ctgctaaacg 180
 ggttatgtcc ctcaaagaac cgacgttgaa aatgtccaag tcccatgccg acagacgctc 240
 aaggatcatt cttacggatt cgcccgcaga aatctccaaa aagatcaatg ctgcgctcac 300

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agactcggaa ttaaccatta catatgaccc agtccgtcga cctggagtgg cgaatttaat 360
agagatcttg agtcacttcg atggacgaac ttgcatgag attgccatgg aataccgttc 420
agccagtctt cgcgctctaa aggaacatct ggccagaacg ttgtccaatc atcttgagcc 480
aataagagag aagtatctct cacttgtagg agatcagact gactaccttg attctatagc 540
agaacagggt tctgaagccg cgcgggccaa cgctgaattg acaatggagc aagtcaaagt 600
cgctatgggc ttaa                                     614

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<210> 35
<211> 552
<212> DNA
<213> Aspergillus fumigatus

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<400> 35
cctgtcggag atgatcaaag gcagcacctc gaattttcga ggaacactgc gaatagtttc 60
aatcatgtat atggacccat tttcccgta ccagaagcaa ttatatcgcc tgctaaacgg 120
gttatgtccc tcaaagaacc gacgttgaaa atgtccaagt cccatgccga cagacgtcga 180
aggatcattc ttacggattc gcccgagaa atctccaaaa agatcaatgc tgcgctcaca 240
gactcggaat taaccattac atatgaccca gtccgtcgac ctggagtggc gaatttaata 300
gagatcttga gtcacttcga tggacgaact tgcgatgaga ttgccatgga ataccgttca 360
gccagtcttc gcgctctaaa ggaacatctg gccagaacgt tgtccaatca tcttgagcca 420
ataagagaga agtatctctc acttgtagga gatcagactg actaccttga ttctatagca 480
gaacagggtt ctgaagccgc gcgggccaac gctgaattga caatggagca agtcaaagtc 540
gctatgggct ta                                     552

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<210> 36
<211> 184
<212> PRT
<213> Aspergillus fumigatus

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<400> 36
Pro Val Gly Asp Asp Gln Arg Gln His Leu Glu Phe Ser Arg Asn Thr
  1              5              10              15

Ala Asn Ser Phe Asn His Val Tyr Gly Pro Ile Phe Pro Ser Pro Glu
      20              25              30

Ala Ile Ile Ser Pro Ala Lys Arg Val Met Ser Leu Lys Glu Pro Thr
      35              40              45

Leu Lys Met Ser Lys Ser His Ala Asp Arg Arg Ser Arg Ile Ile Leu
      50              55              60

Thr Asp Ser Pro Ala Glu Ile Ser Lys Lys Ile Asn Ala Ala Leu Thr
      65              70              75              80

Asp Ser Glu Leu Thr Ile Thr Tyr Asp Pro Val Arg Arg Pro Gly Val
      85              90              95

Ala Asn Leu Ile Glu Ile Leu Ser His Phe Asp Gly Arg Thr Cys Asp
      100              105              110

Glu Ile Ala Met Glu Tyr Arg Ser Ala Ser Leu Arg Ala Leu Lys Glu
      115              120              125

His Leu Ala Arg Thr Leu Ser Asn His Leu Glu Pro Ile Arg Glu Lys
      130              135              140

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Tyr Leu Ser Leu Val Gly Asp Gln Thr Asp Tyr Leu Asp Ser Ile Ala
 145 150 155 160

Glu Gln Gly Ser Glu Ala Ala Arg Ala Asn Ala Glu Leu Thr Met Glu
 165 170 175

Gln Val Lys Val Ala Met Gly Leu
 180

<210> 37
 <211> 819
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 37
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 actcaggtac ggaactcgaa actacgctat aatgaggctt tactcgtgat ttggatgttg 120
 acaataatgt tcctagaccg agagtctgtt tcacacctat gcgcagtatg catcgatgac 180
 gaagctgcct ccgaaaccct cagaagaaga acaacggatt gaatcgcaac tgaaggatct 240
 tcttgaaaag gtgtgcactt tgaggccctc tagtccagcc caacagacga tcatgctgac 300
 acgatccgat catagcgtga agccctcatc tcccgctctt cccgtctcct tgactccgaa 360
 gccactctta ccgcatctgc cctgaaacag agcaatcttg cccgcaatcg cgaagtcctc 420
 caggatcatc gccgcgaatt gcagcgctg aacgccgcaa tcgccgagtc ccgcgaccga 480
 gccaatcttc tgtctaactg ccgctccgac attgatgcct accgcaattc aaaccccgcc 540
 gcggctgagg cagactacat gctcgaggag cggggtcgta tagatgaaag ccataacatg 600
 atagatgggtg tcctaagcca ggcgtatgca atcaacgaga gttttgggct acaacgtgaa 660
 accctggcca gcatcaatcg ccgtatcgtc ggtgctgcca ataaggtacc aggaatgaat 720
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 atcggctttt gtttcttgat ggtgttcttc ttccgatga 819

<210> 38
 <211> 681
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 38
 atggcaactt cgactgggac cggatgggct cagctccggc agcaagcccg ttcgcttgag 60
 actcagaccg agagtctgtt tcacacctat gcgcagtatg catcgatgac gaagctgcct 120
 ccgaaaccct cagaagaaga acaacggatt gaatcgcaac tgaaggatct tcttgaaaag 180
 cgtgaagccc tcatctccca gctctcccg tctcttgact ccgaagccac tcttaccgca 240
 tctgccctga aacagagcaa tcttgcccg cgcgcgaag tcctccagga tcatcgccgc 300
 gaattgcagc gcctgaacgc cgcaatcgcc gagtcccgcg accgagccaa tcttctgtct 360
 aacgtccgct ccgacattga tgcctaccgc aattcaaacc ccgccgcggc tgaggcagac 420
 tacatgctcg aggagcgggg tcgtatagat gaaagccata acatgataga tgggtgtccta 480
 agccaggcgt atgcaatcaa cgagagtttt gggctacaac gtgaaaccct ggccagcatc 540
 aatcgccgta tcgtcggtgc tgccaataag gtaccaggaa tgaatgcatt gattggtaag 600
 attgggacga agaggagacg tgacgcaatc atcttggggg ctttcatcgg cttttgtttc 660
 ttgatggtgt tcttcttcg a 681

<210> 39
 <211> 227
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 39

Met Ala Thr Ser Thr Gly Thr Gly Trp Ala Gln Leu Arg Gln Gln Ala
 1 5 10 15

Arg Ser Leu Glu Thr Gln Thr Glu Ser Leu Phe His Thr Tyr Ala Gln
 20 25 30

Tyr Ala Ser Met Thr Lys Leu Pro Pro Lys Pro Ser Glu Glu Glu Gln
 35 40 45

Arg Ile Glu Ser Gln Leu Lys Asp Leu Leu Glu Lys Arg Glu Ala Leu
 50 55 60

Ile Ser Gln Leu Ser Arg Leu Leu Asp Ser Glu Ala Thr Leu Thr Ala
 65 70 75 80

Ser Ala Leu Lys Gln Ser Asn Leu Ala Arg Asn Arg Glu Val Leu Gln
 85 90 95

Asp His Arg Arg Glu Leu Gln Arg Leu Asn Ala Ala Ile Ala Glu Ser
 100 105 110

Arg Asp Arg Ala Asn Leu Leu Ser Asn Val Arg Ser Asp Ile Asp Ala
 115 120 125

Tyr Arg Asn Ser Asn Pro Ala Ala Ala Glu Ala Asp Tyr Met Leu Glu
 130 135 140

Glu Arg Gly Arg Ile Asp Glu Ser His Asn Met Ile Asp Gly Val Leu
 145 150 155 160

Ser Gln Ala Tyr Ala Ile Asn Glu Ser Phe Gly Leu Gln Arg Glu Thr
 165 170 175

Leu Ala Ser Ile Asn Arg Arg Ile Val Gly Ala Ala Asn Lys Val Pro
 180 185 190

Gly Met Asn Ala Leu Ile Gly Lys Ile Gly Thr Lys Arg Arg Arg Asp
 195 200 205

Ala Ile Ile Leu Gly Ala Phe Ile Gly Phe Cys Phe Leu Met Val Phe
 210 215 220

Phe Phe Arg
 225

<210> 40

<211> 1601

<212> DNA

<213> *Aspergillus fumigatus*

<400> 40

atgtcacaaa atcgacctgg ggtgttctcg aatctgcgca tgggtggtaa ggaacatcca 60
 aatgctgagt ccaattgttc agaaaacatt acccaggagc ctgtggaact aactgctttg 120
 ctttcgacc atacagaagt cgtccgagag aagggtccagg atggactgac aggggaaact 180
 aaggagattt cgtactcaca atgtaaaatc gtcggcaatg gatcgtttgg tgtcgtcttt 240
 cagacgaaaa tgatgccaag cggcgaggat gctgccatta agagggtcct tcaagacaag 300

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cgcttcaaag tatgtgtaca ttataagggc aattgccctc gctgcccac ccaaagatac 360
tgtcgtgac gagataccag aatcgagaac tgcagattat gcggattgtt cgccatccta 420
acatcgtaga attgaaagcc ttctattact cgaacggcga gaggggatgc gactctcctt 480
tgtctcccca ttcgttctag tttgccgttt gctgactacc ctaccattgt ctttcacaga 540
aggatgaagt gtacctaaac ctcgttctcg aatacgtacc agaaaccgtg tatcgggcgt 600
cgcggtactt taataaactc aaaacgacta tgccaatggt ggaagtcaag ctgtatatct 660
atcaattggt ccgttcctcg gcatacatcc attcacaagg catctgccac cgtgacatca 720
agccccagaa tctcttactt gatccatcca ccggcatcct caaactctgc gactttgggt 780
cggccaagat tctggtagag aatgagccca acgtttccta tatctgttcc cgctactatc 840
gtgcgcggga attgatcttt ggcgccacta attacacaac aaagatcggg aagtcttgac 900
tgattcctcc ttcaagtttg gtactgtcat gctgacgatc gtcaagacgt gtgggtccacg 960
ggttgtgtga tggctgaact catgcttggt cagccattgt tcctggaga gtcgggaatt 1020
gaccaactgg tggaaatcat caaggttctt ggaaccccta ctcgggagca gatccgcacc 1080
atgaacccaa actatatgga gcacaaattc cctcaaatca agccacaccc attcaacaag 1140
gtgaccacgc tcttaaagaa cttcttgcca atatgactg acttgatgac cccaggtttt 1200
ccggagagct cctcacgagg ccattgatct gatctcagct ttgctagaat acacgccgac 1260
acaacgtctc tcgcgtatcg aggcgatgtg ccaccggtc ttcgacgaac tcagagatcc 1320
caatacgcga ctgcccgact ctcgccaccc ttggtggcgt gctagagacc tcccattct 1380
ctttgatttc tccagacatg gtttgttgct acttgaggcc caaattcatt cttccagatg 1440
gcttattcgc tgatcactct tttgtagaac tttctattgc acctgcattg aacagccggc 1500
tggttcccc tcacgcacgc gccgctctcg aggccgggg gctagacatt gacaacttca 1560
ctcctctcac gaaggaggag atgatggcac gtctcgactg a 1601

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<210> 41

<211> 1182

<212> DNA

<213> *Aspergillus fumigatus*

<400> 41

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atgtcacaaa atcgacctgg ggtgttctcg aatctgcgca tgggtgaagt cgtccgcgag 60
aagggtccagg atggactgac aggggaaact aaggagattt cgtactcaca atgtaaaatc 120
gtcggcaatg gatcgtttgg tgctgtcttt cagacgaaaa tgatgccaag cggcgaggat 180
gctgccatta agagggtcct tcaagacaag cgcttcaaaa atcgagaact gcagattatg 240
cggattgttc gccatcctaa catcgtagaa ttgaaagcct tctattactc gaacggcgag 300
aggaaggatg aagtgtacct aaacctcgtt ctgcaatacg taccagaaac cgtgtatcgg 360
gcgtcgcggt actttaataa actcaaaacg actatgccaa tgttggaagt caagctgtat 420
atctatcaat tgttccgttc cctggcatac atccattcac aaggcatctg ccaccgtgac 480
atcaagcccc agaattctctt acttgatcca tccaccggca tcctcaaact ctgcgacttt 540
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<210> 42

<211> 394

<212> PRT

<213> *Aspergillus fumigatus*

<400> 42

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Gln Arg Leu Ser Ala Ile Glu Ala Met Cys His Pro Phe Phe Asp Glu
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<210> 43

<211> 2209

<212> DNA

<213> *Aspergillus fumigatus*

<400> 43

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<210> 44

<211> 2209

<212> DNA

<213> *Aspergillus fumigatus*

<400> 44

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<210> 45

<211> 735

<212> PRT

<213> *Aspergillus fumigatus*

<400> 45

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Lys	Lys	Leu	Leu	Ile	Leu	His	Ser	Leu	Leu	Leu	Leu	Val	Leu	Ser	Leu	245	250	255	
Glu	His	Tyr	Asn	Ala	Trp	Ser	Arg	Val	Leu	Met	Leu	Phe	Val	Thr	Ser	260	265	270	
Ser	Leu	Gly	Leu	Asp	Val	Lys	Leu	Leu	Asn	Glu	Asp	Glu	Val	Lys	Val	275	280	285	
Ala	Arg	Gly	Leu	Leu	Asp	Thr	Ala	Leu	Ala	Leu	Ser	Ser	Asn	Ala	Pro	290	295	300	

Arg	Gln	Asp	Glu	Ser	Arg	Ser	Arg	Asp	Ser	Ser	Arg	Lys	Trp	Lys	Val	305	310	315	320
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Gly	Ala	Glu	Ser	Glu	Val	Phe	Gly	Leu	Arg	Trp	Glu	Thr	Glu	Pro	Leu	450	455	460	
Met	Asn	Leu	Gly	Asn	Ala	Leu	Asp	Leu	Leu	Val	Thr	Ser	Ala	Ala	Trp	465	470	475	480
Thr	Ala	Gly	Glu	Gln	Val	Leu	Lys	Lys	Thr	Phe	Leu	Ser	Gln	Leu	Leu	485	490	495	
Thr	Ala	Val	Ala	Leu	Pro	Leu	Gly	Leu	Leu	Lys	Val	Ala	Arg	Val	Val	500	505	510	
Asp	Asn	Pro	Phe	Ser	Val	Ala	Lys	Ala	Arg	Ala	Asp	Lys	Ala	Gly	Glu	515	520	525	
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Thr	Leu	Ile	Gly	Tyr	Ser	Leu	Gly	Ser	Arg	Val	Ile	Phe	Ala	Cys	Leu	545	550	555	560
Gln	Ser	Leu	Ala	Lys	Arg	Arg	Ala	Phe	Gly	Leu	Val	Glu	Ser	Ala	Ile	565	570	575	
Leu	Met	Gly	Ala	Pro	Thr	Pro	Ser	Asn	Ser	Glu	Gln	Trp	Cys	Arg	Ile	580	585	590	
Arg	Ser	Val	Val	Ser	Gly	Arg	Leu	Val	Asn	Val	Tyr	Ser	Glu	Asn	Asp	595	600	605	

Ser Val Leu Ala Leu Leu Tyr Arg Thr Ser Ser Leu Gln Leu Gly Val
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 Ala Gly Leu Gln Pro Val Glu Gly Val Ser Gly Val Glu Asn Leu Asp
 625 630 635 640
 Val Ser Asp Leu Ile Ser Gly His Leu Arg Tyr Gln Phe Leu Val Gly
 645 650 655
 Arg Ile Leu Ser Val Val Gly Leu Glu Ser Ile Asp Ala Arg Glu Val
 660 665 670
 Ala Leu Glu Glu Ala Ala Leu Glu Ala Lys Asp Arg Arg Gln Glu Gln
 675 680 685
 Glu Arg Ala His Asn Glu Arg Gln Ala Gly Phe Met Gly Glu Gly Arg
 690 695 700
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<210> 46

<211> 510

<212> DNA

<213> *Aspergillus fumigatus*

<400> 46

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<213> *Aspergillus fumigatus*

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 <213> *Aspergillus fumigatus*

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 35 40 45
 Ser Thr Glu Glu Asn Lys Ile Val Pro Arg His Ala Leu Pro Leu Ala
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 His Ala Thr Leu Thr Pro Phe Val Ile Pro Lys Leu Pro Arg Ala Ala
 65 70 75 80
 Gly Thr Gly Pro Val Lys Lys Leu Trp Glu Lys Asn Glu Ile Asp Gly
 85 90 95
 Lys Trp Ala Lys Ser Thr Ile Ala Gln Lys Thr Glu Arg Ala Glu Arg
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<210> 49
 <211> 1413
 <212> DNA
 <213> *Aspergillus fumigatus*

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<210> 50

<211> 1284

<212> DNA

<213> *Aspergillus fumigatus*

<400> 50

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<210> 51

<211> 428

<212> PRT

<213> *Aspergillus fumigatus*

<400> 51

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      20                      25                      30

Gly Gln Glu Gln Arg Lys Gly Leu Ala Thr Ala Val Pro Pro Val Thr
      35                      40                      45

Gln Asn Ala Ala Gly Ser Lys Gly Pro Thr Ala Met Val Phe Leu Asn
      50                      55                      60

Met Gly Gly Pro Ser Lys Ile Asp Glu Val Glu Asp Phe Leu Ser Arg
      65                      70                      75                      80

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Leu	Phe	Ala	Asp	Gly	Asp	Leu	Ile	Pro	Leu	Gly	Arg	Leu	Gln	Ser	Tyr	85	90	95	
Leu	Gly	Pro	Leu	Ile	Ala	Lys	Arg	Arg	Thr	Pro	Lys	Ile	Gln	Arg	Gln	100	105	110	
Tyr	Ser	Asp	Ile	Gly	Gly	Gly	Ser	Pro	Ile	Arg	Lys	Trp	Ser	Glu	Tyr	115	120	125	
Gln	Cys	Glu	Glu	Met	Cys	Arg	Leu	Leu	Asp	Lys	Ile	Asn	Pro	Glu	Thr	130	135	140	
Ala	Pro	His	Lys	Pro	Tyr	Val	Ala	Phe	Arg	Tyr	Ala	Asp	Pro	Leu	Thr	145	150	155	160
Glu	Glu	Met	Tyr	Thr	Lys	Leu	Leu	Glu	Asp	Gly	Phe	Gly	Asn	Gly	Lys	165	170	175	
Gly	Gly	Arg	Ala	Val	Ala	Phe	Thr	Gln	Tyr	Pro	Gln	Tyr	Ser	Cys	Ser	180	185	190	
Thr	Thr	Gly	Ser	Ser	Leu	Asn	Glu	Leu	Trp	Lys	Trp	Arg	Thr	Arg	Leu	195	200	205	
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Trp	Ser	Val	Ile	Asp	Arg	Trp	Pro	Thr	His	Pro	Gly	Leu	Val	Glu	Ala	225	230	235	240
Phe	Ala	Arg	Asn	Ile	Glu	Glu	Gln	Leu	Lys	Thr	Tyr	Pro	Glu	Glu	Lys	245	250	255	
Arg	Asn	Gly	Val	Val	Leu	Leu	Phe	Ser	Ala	His	Ser	Leu	Pro	Met	Ser	260	265	270	
Val	Val	Asn	Arg	Gly	Asp	Pro	Tyr	Pro	Ala	Glu	Val	Ala	Ala	Thr	Val	275	280	285	
His	Ala	Val	Met	Gln	Arg	Leu	Asn	Phe	Ser	Asn	Pro	Tyr	Arg	Leu	Cys	290	295	300	
Trp	Gln	Ser	Gln	Val	Gly	Pro	Ser	Ala	Trp	Leu	Gly	Ala	Gln	Thr	Ser	305	310	315	320
Asp	Thr	Val	Glu	Asn	Tyr	Val	Lys	Arg	Gly	Gln	Thr	Asp	Ile	Ile	Leu	325	330	335	
Val	Pro	Ile	Ala	Phe	Thr	Ser	Asp	His	Ile	Glu	Thr	Leu	Tyr	Glu	Leu	340	345	350	
Asp	Leu	Glu	Val	Ile	Lys	Glu	Ala	Asn	Ser	Pro	Gly	Val	Lys	Arg	Ala	355	360	365	
Glu	Ser	Leu	Asn	Gly	Asn	Pro	Ile	Phe	Ile	Gln	Ala	Leu	Ala	Asp	Ile	370	375	380	

Ala Gln Glu His Leu Arg Lys Gly Glu Lys Cys Ser Leu Gln Met Thr
 385 390 395 400

Leu Arg Cys Gln Gly Cys Lys Ser Glu Arg Cys Leu Glu Gln Lys Lys
 405 410 415

Phe Phe Ala Gly Asp Arg Phe Ser Ser Leu Val Val
 420 425

<210> 52
 <211> 1536
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 52
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 ttctcctcat ctcgggtgcg ggctggcatt gccgatcatg aatcaactcc ctcgactgtc 180
 caaaagacct atttttctgc caatcggacc gcagatggct tacttgcatc cttatccgcc 240
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 gccaacggca gtgctcgacg cctcttctgg gccagtattt ggcagctgcc aatcctcctt 1380
 gtcggtgggtc tgggtcacgaa gaaaggtctc tgggatgggt tctggaacaa tgttttcggt 1440
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 gagcgcaaga tgataacctgc gaagacgagt agctcg 1536

<210> 53
 <211> 1536
 <212> DNA
 <213> *Aspergillus fumigatus*

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 aaggaagagg cggccaagaa taatgctgca gaaaccgaac tccctcctga tgcctcgtct 420
 caattgtcca ccctctcatc agccctccct gcgacttccc tgcgcgcaa gctggctgcg 480

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tgcagcgcca ataccttgaa tatgctcctt gaacctaaat acgatgccct catgtcacgg 720
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attgcgactg ctgctgcagg tctcggtttg ttatacatcg gaacgaacct tacgactact 840
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<210> 54

<211> 512

<212> PRT

<213> *Aspergillus fumigatus*

<400> 54

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Arg Pro Val Ala Val Arg Ser Phe Phe Ser Ser Ser Arg Leu Arg Ala
      35              40              45

Gly Ile Ala Asp His Glu Ser Thr Pro Ser Thr Val Gln Lys Thr Tyr
      50              55              60

Phe Ser Ala Asn Arg Thr Ala Asp Gly Leu Leu Ala Ser Leu Ser Ala
      65              70              75              80

Val Asn Ser Ser Pro Arg Ser Ile Ala Asp Asn Ala Leu Ser Gln Gly
      85              90              95

Ala Ala Ser Ser Glu Ser Ile Thr Ser Gln Ser Thr Ser Gln Glu Leu
      100             105             110

Pro His Arg Arg Arg Lys Arg Leu Lys Glu Glu Ala Ala Lys Asn Asn
      115             120             125

Ala Ala Glu Thr Glu Leu Pro Pro Asp Ala Ser Ser Gln Leu Ser Thr
      130             135             140

Leu Ser Ser Ala Leu Pro Ala Thr Ser Leu Arg Arg Lys Leu Ala Ala
      145             150             155             160

Phe Leu Ala Leu Thr Lys Pro Arg Leu Ser Phe Leu Ile Val Leu Thr
      165             170             175

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 Asp Pro Ser Met Thr Pro Leu Pro Thr Leu Ser Thr Ser Thr Leu Thr
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 Phe Leu Tyr Leu Thr Thr Gly Thr Phe Leu Ser Ser Cys Ser Ala Asn
 210 215 220
 Thr Leu Asn Met Leu Leu Glu Pro Lys Tyr Asp Ala Leu Met Ser Arg
 225 230 235 240
 Thr Arg Asn Arg Pro Leu Val Arg Gly Leu Leu Ser Arg Arg Ala Ala
 245 250 255
 Val Leu Phe Ala Ile Ala Thr Ala Ala Ala Gly Leu Gly Leu Leu Tyr
 260 265 270
 Ile Gly Thr Asn Pro Thr Thr Thr Ala Leu Ser Ala Ser Asn Ile Cys
 275 280 285
 Leu Tyr Ala Phe Val Tyr Thr Pro Leu Lys Arg Ile Ser Val Ile Asn
 290 295 300
 Thr Trp Val Gly Ala Val Val Gly Gly Ile Pro Pro Leu Met Gly Trp
 305 310 315 320
 Thr Ala Ala Ala Gly Gln Thr Ala Thr Thr Gly His Asp Ser Trp Arg
 325 330 335
 Asp Met Leu Phe Ser Lys Asp Ser Ile Gly Gly Trp Leu Leu Gly Gly
 340 345 350
 Ile Leu Phe Ala Trp Gln Phe Pro His Phe Asn Ala Leu Ser Tyr Met
 355 360 365
 Ile Arg Glu Glu Tyr Lys Ala Ala Gly Tyr Arg Met Leu Ala Trp Thr
 370 375 380
 Asn Pro Ala Ala Asn Ala Arg Val Ala Leu Arg Tyr Ser Leu Leu Met
 385 390 395 400
 Phe Pro Phe Ser Val Gly Leu Trp Trp Val Gly Val Val Gly Asn Gly
 405 410 415
 Phe Leu Val Gly Ser Thr Ala Ala Asn Gly Trp Leu Val Lys Glu Ala
 420 425 430
 Tyr Lys Phe Trp Arg His Gln Gly Ala Asn Gly Ser Ala Arg Arg Leu
 435 440 445
 Phe Trp Ala Ser Ile Trp Gln Leu Pro Ile Leu Leu Val Gly Gly Leu
 450 455 460
 Val Thr Lys Lys Gly Leu Trp Asp Gly Val Trp Asn Asn Val Phe Gly
 465 470 475 480

Gln Pro Val Glu Asp Glu Asp Asp Tyr Leu Trp Glu Asp Glu Asp Glu
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Val Ala Glu Ala Glu Arg Lys Met Ile Pro Ala Lys Thr Ser Ser Ser
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<210> 55
 <211> 1626
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 55
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 ttccgctcgac agttgcatgc ttccggcgct cgatcaattg aacctgttat ctttcgaaat 180
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 gcaagtctca agcgtggga tgacagtga ccggccgcga acgttagtat cctgacacgg 1560
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 gcgacc 1626

<210> 56
 <211> 1626
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 56
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 gtgattaacc acgattgtcc tgctgaaacg cccctccaa ttttaccact tgagaatcgt 300
 gctggtcatg atcaatcatc tcaaaaggcc tcctccgtgt caaatgcaga gtcagagtcc 360

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ccccggtctt ctgcgcctgc gagacgagcg cagaggaagg cccgttcgcc cagccaagta 420
gccaccccg c agccccagac aacagaatat ccacaactgc aatggcatgc agatgaaacc 480
aagggccgac cggcacaaaag tccttggctg aagtacttga ctaccgattg gaaaacgccc 540
gatgccgttt cgcgtctcga cgcggagatc cgcgctcttg agctctacat gacaccgacc 600
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gcgacc                                     1626

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<210> 57

<211> 542

<212> PRT

<213> *Aspergillus fumigatus*

<400> 57

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Asp Arg Ala Ala Met Arg Leu Gly Phe Ala Leu Arg Leu Ser Ser Pro
          20                      25                      30

Ala Pro Leu Phe Ser Thr Ala Pro Phe Arg Arg Gln Leu His Ala Ser
          35                      40                      45

Gly Val Arg Ser Ile Glu Pro Val Ile Phe Arg Asn Ser Leu Glu Lys
          50                      55                      60

Thr Leu Glu Ala His Arg Ser Ser Asn Arg Ala Ser Leu Ile Arg Lys
          65                      70                      75                      80

Val Ile Asn His Asp Cys Pro Ala Glu Thr Pro Pro Pro Ile Leu Pro
          85                      90                      95

Leu Glu Asn Arg Ala Gly His Asp Gln Ser Ser Gln Lys Ala Ser Ser
          100                     105                     110

Val Ser Asn Ala Glu Ser Glu Ser Pro Arg Ser Ser Ala Pro Ala Arg
          115                     120                     125

Arg Ala Gln Arg Lys Ala Arg Ser Pro Ser Gln Val Ala Thr Pro Gln
          130                     135                     140

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Pro	Gln	Thr	Thr	Glu	Tyr	Pro	Gln	Leu	Gln	Trp	His	Ala	Asp	Glu	Thr	145	150	155	160
Lys	Gly	Arg	Pro	Ala	Gln	Ser	Pro	Trp	Leu	Lys	Tyr	Leu	Thr	Thr	Asp	165	170	175	
Trp	Lys	Thr	Pro	Asp	Ala	Val	Ser	Arg	Leu	Asp	Ala	Glu	Ile	Arg	Ala	180	185	190	
Leu	Glu	Leu	Tyr	Met	Thr	Pro	Thr	Pro	Ser	Glu	Arg	Thr	Glu	Ile	Asp	195	200	205	
Arg	Leu	Val	Ala	Asp	Met	Gly	Arg	Leu	Leu	Ala	Gly	Ile	Val	Pro	Ser	210	215	220	
Pro	Pro	Gln	Val	Thr	Gly	Ser	Trp	Arg	Thr	Arg	Phe	Ala	Leu	Ser	His	225	230	235	240
Ser	Gly	Leu	Asp	Phe	Val	Leu	Pro	Val	Pro	Asp	Ser	Asp	Arg	Ser	Thr	245	250	255	
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Tyr	Lys	Lys	Leu	Leu	His	Glu	Val	Gly	His	Ala	Leu	Gln	Gln	Ser	Pro	275	280	285	
Ser	Phe	Ala	Glu	Arg	Val	Arg	Ile	Ile	Gly	Ser	Arg	Phe	Pro	Val	Leu	290	295	300	
Ser	Ala	Ile	His	Arg	Pro	Thr	Gly	Arg	Leu	Leu	Gln	Phe	His	Cys	Gly	305	310	315	320
Glu	Gly	Leu	Pro	Ala	Ser	Val	Glu	Tyr	Ile	Met	Asp	Tyr	Gln	Ala	Glu	325	330	335	
Tyr	Pro	Ser	Ile	Arg	Pro	Leu	Tyr	Val	Thr	Ala	Arg	Leu	Ile	Leu	Glu	340	345	350	
Ala	Arg	Gly	Arg	Tyr	Gly	Arg	Thr	Gln	Met	Ser	Ile	Glu	Ser	Asp	Ala	355	360	365	
Leu	Val	Met	Leu	Leu	Val	Ala	Phe	Leu	Lys	Met	Asn	His	Gly	Arg	Phe	370	375	380	
Gln	Arg	Pro	Asp	Cys	Leu	Gly	Glu	Gln	Leu	Ile	Ala	Phe	Leu	Arg	Ala	385	390	395	400
Tyr	Gly	Ser	Asp	Ile	Asp	Leu	Thr	Thr	Thr	Gly	Val	Ser	Val	Asp	Pro	405	410	415	
Pro	Ser	Trp	Phe	Asn	Ala	Ser	Thr	Val	Lys	Arg	Ala	Ser	Ala	Leu	Tyr	420	425	430	
Ala	Pro	Asp	Asp	Leu	Pro	Ala	His	Leu	Arg	Gly	Gln	Arg	Ser	Leu	Ile	435	440	445	

Ser Leu Lys Arg Thr Ala Ala Ala Arg Arg Asn Leu Pro Ala Ala Ser
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Arg Leu Cys Val Gln Asp Pro Thr Asn Tyr Met Asn Asp Leu Gly Arg
 465 470 475 480

Ser Cys Val Arg Thr Leu Glu Leu Gln His Thr Phe Ser Leu Ala His
 485 490 495

Asp Arg Leu Gly Ala Ser Leu Lys Arg Trp Asp Asp Ser Glu Pro Ala
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Ala Asn Val Ser Ile Leu Thr Arg Ala Leu Gln Ala Asn Phe Ser Asp
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Phe Glu Asn Leu Arg Ala Lys Ser Leu Lys Leu Asn Ala Thr
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<210> 58

<211> 2356

<212> DNA

<213> *Aspergillus fumigatus*

<400> 58

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<210> 59

<211> 2356

<212> DNA

<213> *Aspergillus fumigatus*

<400> 59

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<211> 785

<212> PRT

<213> Aspergillus fumigatus

<400> 60

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35 40 45

Pro Val Val Asp Ala Met Glu Arg Thr Lys Asn Ala Ile Gln Ser Asn
50 55 60

Asn Ser Ser Ser Arg Ala Gln Leu Ser Asp Ala Leu Pro Glu Ser Glu
65 70 75 80

Lys Ser Gln Ser Ala Gly Gln Val Ile Val Pro Thr Arg Met Gln Glu
85 90 95

Leu Leu Asp Arg Gly Arg Pro Ile Glu Ala Ala Gln Phe Phe Leu Glu
100 105 110

Thr His Ala Ala Ser Leu Lys Gly Ile Ser Ser Asp Arg Lys Glu Met
115 120 125

Ala Thr Lys Val Phe Phe Val Asn Cys Lys Glu Asp Asn Val Phe Ile
130 135 140

Ala Arg Ser Val Phe Glu Arg Leu Glu Glu Val Asp Arg Ile Thr Pro
145 150 155 160

Glu Met Trp Lys Thr Leu Met Leu Ala Leu Ala Lys Lys Gly Cys Ile
165 170 175

Glu Ser Val Ala Ser Val Tyr Thr Arg Tyr Met Arg Lys Phe Pro Cys
180 185 190

Pro Pro Glu Met Val Asp Val Val Leu Arg Ser Leu Leu Glu Ser His
195 200 205

Arg Leu Thr Thr Ala Lys Trp Phe Leu Leu Arg Asn Leu Gln His Asp
210 215 220

Arg Asp Cys Gly Leu Cys Gly Ala Tyr Leu Ser Gly Leu Trp Arg Lys
225 230 235 240

Thr Arg Ser Ile Glu Leu Leu Asn Gly Gln Leu Lys Lys Ile Leu Thr
245 250 255

Ile Leu Pro Lys Phe Glu Lys Gln Pro Ser Asp Lys Leu Phe Asn Pro
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580 585 590

Val Leu Arg Phe Tyr Gln Leu Cys Trp Ser Thr Lys His Met Lys Val
595 600 605

Lys His His Leu Thr Val Ala Thr Ser Arg Arg Leu Ile Ser Gln His
610 615 620

Lys Pro Glu Met Ala Leu Glu Leu Leu Thr Ala Val Tyr Lys Ser Arg
625 630 635 640

Tyr Arg Phe Ala Ala Thr Phe Asp Gly Val Cys Met Lys Met Phe Ala
645 650 655

Arg Ala Phe Ala Ala Thr Asp Asn Ile Leu Gly Leu Arg Trp Cys Ile
660 665 670

Leu Thr Ala Leu Ser Arg Asp Ser Ala Leu Asn His Asp Phe Val Val
675 680 685

Glu Val Arg Arg Ile Leu Gly Thr Leu Ser Pro Pro Ser Ala Val Asp
690 695 700

Ala Thr Ala Gly Pro Val Thr His Glu Gln Leu Glu Tyr Leu Tyr Tyr
705 710 715 720

Ile Ala Asp Leu Leu Glu Glu Lys Asn Glu Gly Cys Ala Pro Ile Trp
725 730 735

Glu Leu Lys His Asp Ala Thr Leu Lys Gln Ser Ser Arg Arg Gln Leu
740 745 750

Lys Gln Pro Leu Asp Ala Ser Arg Leu Phe Asn Gln Ser Asp Val Arg
755 760 765

Glu Thr Val Lys Arg Trp Asp Glu Glu Tyr Glu Leu Glu Ala Val Leu
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785

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<211> 21

<212> DNA

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<223> Description of Artificial Sequence: Synthetic
primer

<400> 61

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<210> 63
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<400> 63
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<210> 64
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<210> 66
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<210> 70
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<210> 71
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<210> 72
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<210> 73
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<210> 77
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 <212> DNA
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<210> 78
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<220>
 <223> Description of Artificial Sequence: Synthetic
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<210> 79
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<220>
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<210> 81
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<220>
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<210> 82
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 <400> 82
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 <210> 83
 <211> 20
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 primer

 <400> 83
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 <210> 84
 <211> 21
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 <220>
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 <400> 84
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 <210> 85
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 <220>
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 <210> 86
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 <400> 86
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<210> 87
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 <223> Description of Artificial Sequence: Synthetic
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 <210> 88
 <211> 19
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 <220>
 <223> Description of Artificial Sequence: Synthetic
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 <400> 88
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 <210> 89
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 <400> 89
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 <210> 90
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 <220>
 <223> Description of Artificial Sequence: Synthetic
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 <400> 90
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 <210> 91
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 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 91

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<211> 683

<212> PRT

<213> *Aspergillus fumigatus*

<400> 94

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<212> DNA

<213> *Aspergillus fumigatus*

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<213> *Aspergillus fumigatus*

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 <213> *Aspergillus fumigatus*

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<212> PRT

<213> *Aspergillus fumigatus*

<400> 98

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<213> *Aspergillus fumigatus*

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<213> *Aspergillus fumigatus*

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<213> *Aspergillus fumigatus*

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<213> Aspergillus fumigatus

<400> 102

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<213> *Aspergillus fumigatus*

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<213> *Aspergillus fumigatus*

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<210> 106

<211> 934

<212> PRT

<213> *Aspergillus fumigatus*

<400> 106

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      35                   40                   45

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Lys	Asn	Lys	Lys	Arg	Lys	Arg	Ala	Glu	Met	Glu	Lys	Ala	Val	Asn	Thr	355	360	365	

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 Met Lys Lys Lys Ala Glu Leu Ala Lys Glu Arg Ala Met Ser Lys Ala
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<210> 107

<211> 2413

<212> DNA

<213> *Aspergillus fumigatus*

<400> 107

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<210> 108

<211> 1413

<212> DNA

<213> *Aspergillus fumigatus*

<400> 108

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<210> 109

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<212> DNA

<213> *Aspergillus fumigatus*

<400> 109

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<210> 110

<211> 428

<212> PRT

<213> *Aspergillus fumigatus*

<400> 110

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<211> 2865
<212> DNA
<213> Aspergillus fumigatus
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<210> 112

<211> 1865

<212> DNA

<213> *Aspergillus fumigatus*

<400> 112

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<210> 113
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 <213> *Aspergillus fumigatus*

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<210> 114
 <211> 574
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 114
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 35 40 45
 Glu Asn Leu Pro Pro Ala Gln Ile Ser Leu Thr Asp Cys Leu Ala Cys
 50 55 60

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His	Thr	Glu	Val	Leu	Asn	Thr	Leu	Asp	Ser	Asp	Gly	Arg	Ile	Phe	Val		
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Pro	His	Gly	Leu	Arg	Ala	Gly	Gly	Lys	His	Gly	Asn	Gly	Phe	Thr	Trp		
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Lys	Ser	Pro	Ile	Leu	Ser	Ser	Ala	Cys	Pro	Gly	Trp	Ile	Cys	Tyr	Ala		
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Glu	Lys	Thr	His	Pro	Phe	Ile	Leu	Pro	His	Leu	Ser	Arg	Leu	Lys	Ser		
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 420 425 430
 Tyr Ala Tyr Val Glu Val Met Ala Cys Pro Gly Gly Cys Thr Asn Gly
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 Pro His Glu Gln Arg Ala Trp Leu Ala Arg Val Asp Glu Ala Tyr Tyr
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 Ser Ala Asp Ser Asp Ser Glu Gly Ser Val Thr Thr Glu Pro Val Ser
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 Val Leu Ser Arg Asp Asn Gln Ile His Glu Phe Leu Asn Tyr Trp Ser
 515 520 525
 Glu Lys Val Asp Ile Pro Leu Ser Arg Leu Ala Tyr Thr Ser Tyr Arg
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<210> 115

<211> 1510

<212> DNA

<213> *Aspergillus fumigatus*

<400> 115

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<210> 116

<211> 685

<212> DNA

<213> *Aspergillus fumigatus*

<400> 116

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<210> 117

<211> 465

<212> DNA

<213> *Aspergillus fumigatus*

<400> 117

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<210> 118

<211> 149

<212> PRT

<213> *Aspergillus fumigatus*

<400> 118

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 20 25 30

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 35 40 45

Ser Thr Glu Glu Asn Lys Ile Val Pro Arg His Ala Leu Pro Leu Ala
 50 55 60

His Ala Thr Leu Thr Pro Phe Val Ile Pro Lys Leu Pro Arg Ala Ala
 65 70 75 80

Gly Thr Gly Pro Val Lys Lys Leu Trp Glu Lys Asn Glu Ile Asp Gly
 85 90 95

Lys Trp Ala Lys Ser Thr Ile Ala Gln Lys Thr Glu Arg Ala Glu Arg
 100 105 110

Arg Lys Asn Leu Thr Asp Phe Glu Arg Phe Lys Val Leu Arg Leu Lys
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<210> 119

<211> 1942

<212> DNA

<213> *Aspergillus fumigatus*

<400> 119

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<210> 120

<211> 943

<212> DNA

<213> *Aspergillus fumigatus*

<400> 120

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<210> 121

<211> 603

<212> DNA

<213> *Aspergillus fumigatus*

<400> 121

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 <213> *Aspergillus fumigatus*

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 35 40 45
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 Asp Phe Leu Asp Leu Val Ser Lys Asn Ala Phe Ile Glu His Ala Gln
 65 70 75 80
 Phe Gly Gly Asn Tyr Tyr Gly Thr Thr Val Gln Ala Val Lys Asp Val
 85 90 95
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 100 105 110
 Lys Gln Val Lys Arg Thr Asp Leu Asp Ala Arg Phe Leu Phe Leu Ala
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 145 150 155 160
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 <213> *Aspergillus fumigatus*

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<210> 124

<211> 2059

<212> DNA

<213> *Aspergillus fumigatus*

<400> 124

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<211> 1884

<212> DNA

<213> *Aspergillus fumigatus*

<400> 125

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<210> 126

<211> 641

<212> PRT

<213> *Aspergillus fumigatus*

<400> 126

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Lys Gln Val Lys Asp Phe Asn Leu Ile Phe Val Ala Val Tyr Gln Ser
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Leu Leu His Leu Gly Trp Ile Asp Lys Leu Leu Asp Asn Val Ser Thr
          85              90              95

Ile Phe Ile Asp Leu Tyr Lys Asp Glu Leu Arg Ser Thr Arg Ala Arg
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Ile Ile Glu Tyr Pro Phe Asp Lys Tyr Phe Asp Gln Gln Val Arg Glu
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Leu Glu Asp Asn Ala Gly Ala Pro Thr Ser Glu Ser Leu Val Val Glu
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Ile Asn Glu Arg Lys Asp Pro Leu Val Ser Ser Asp Asn Gly Gly Pro
          145              150              155              160

Pro Pro Pro Pro Val Pro Val Ala Gln Gly Val Ala Thr Ser Asp Glu
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Gly Ser Pro Pro Gln Thr Pro Asp Leu Ser Arg Ser Ser Thr Pro Ile
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Val Glu Leu Tyr Glu Lys Gly Tyr Gly Lys Asp Ala Ala Asn Val Ala
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Lys Asp Ala Val Glu Tyr Gly Ala Ala Asn His Phe Asp Val Val Leu
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Ile Asp Thr Ala Gly Arg Arg His Asn Asp Gln Arg Leu Met Ser Ser
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Leu Glu Lys Phe Ala Lys Phe Ala Lys Pro Asp Lys Ile Phe Met Val
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Gly Glu Ala Leu Val Gly Thr Asp Ser Val Met Gln Ala Arg Asn Phe
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Asn Gln Ala Phe Gly Thr Gly Arg Asn Leu Asp Gly Phe Ile Ile Ser
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Lys Cys Asp Thr Val Gly Asp Met Val Gly Thr Leu Val Ser Met Val
595 600 605

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<210> 127

<211> 2564

<212> DNA

<213> *Aspergillus fumigatus*

<400> 127

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<210> 128

<211> 1564

<212> DNA

<213> *Aspergillus fumigatus*

<400> 128

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 <213> *Aspergillus fumigatus*

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 <213> *Aspergillus fumigatus*

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 35 40 45
 Tyr Asn Leu Asp Phe Glu Ser Pro Lys Asn Asp Lys Leu Ser Leu Phe
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 Glu Leu Gly Asp Arg Val Tyr Asp His Met Leu Leu Leu Pro Pro Lys
 65 70 75 80
 Ser Lys Gly Tyr Gly Pro Ser Leu Thr Pro Lys Asn Ile Ile Asp Phe
 85 90 95

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Ser	Phe	Arg	Val	Asn	Tyr	Lys	Arg	Pro	Phe	Leu	Thr	Asn	Ile	Glu	Glu	385	390	395	400

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<210> 131

<211> 3376

<212> DNA

<213> *Aspergillus fumigatus*

<400> 131

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<210> 132

<211> 2376

<212> DNA

<213> *Aspergillus fumigatus*

<400> 132

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<211> 2148

<212> DNA

<213> *Aspergillus fumigatus*

<400> 133

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<213> *Aspergillus fumigatus*

<400> 134

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<210> 135

<211> 3639

<212> DNA

<213> *Aspergillus fumigatus*

<400> 135

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<210> 136

<211> 2639

<212> DNA

<213> *Aspergillus fumigatus*

<400> 136

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<212> DNA

<213> *Aspergillus fumigatus*

<400> 137

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<210> 138

<211> 809

<212> PRT

<213> *Aspergillus fumigatus*

<400> 138

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Gly Arg Leu His Ala Tyr Glu Pro Arg Thr Ala Glu Ala Ser Tyr Leu
      35             40             45

Leu Ala Leu Cys His Leu Gln Asn Gly Gln Val Lys Ala Ala Tyr Asp
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Tyr Ser Arg Asn Phe Gly Ser Arg Gly Thr His Leu Gly Cys Ser Tyr
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Val Phe Ala Gln Ala Cys Leu Asp Leu Gly Lys Tyr Leu Glu Gly Ile
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Thr Ala Leu Glu Arg Ser Lys Gly Leu Trp Ala Ser Lys Asn His Trp
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Asn Lys His Ser Glu Thr Arg Arg Gln His Leu Pro Asp Ala Ala Ala
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Val Phe Cys Leu Leu Gly Lys Leu Trp His Ala His Lys Asp Ile Asn
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Lys Ala Val Glu Cys Tyr Val Glu Ser Leu Lys Leu Asn Pro Phe Met
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Trp Asp Ala Phe Gln Gly Leu Cys Asp Thr Gly Val Asn Val Arg Val
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Lys	Met	Lys	Pro	Thr	Gly	Ile	Arg	Pro	Arg	Thr	Arg	Thr	Arg	Thr	Glu	325	330	335	
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Ile	Cys	Cys	Ile	Gly	Leu	Val	Leu	Glu	Lys	Met	Asn	Asn	Pro	Lys	Ala		
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<210> 139

<211> 2684

<212> DNA

<213> *Aspergillus fumigatus*

<400> 139

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 <213> *Aspergillus fumigatus*

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<210> 141
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 <213> *Aspergillus fumigatus*

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<211> 568

<212> PRT

<213> *Aspergillus fumigatus*

<400> 142

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Asn Ser Leu His Gly Thr Arg Asp Leu Leu Glu Lys Ile Lys Gln Met
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Pro Val Thr Leu Pro Glu Asp Thr Leu Glu Thr Tyr Glu Phe Asn His
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Leu Leu Arg Asn Val Lys Glu Ala Thr Leu Val Leu Arg Asn Met Val
      65             70             75             80

Leu Leu Lys Glu Asn Ala Tyr Tyr Val Ser Arg Tyr Ala Lys Gly Leu
      85             90             95

Leu Arg Asp Phe Leu Val Ile Met Ile Asn Leu Pro Asn Gln Pro Arg
      100            105            110

Leu Asn Glu Ile Lys Asn Asp Ala Leu Asp Ile Ala Glu Glu Val Thr
      115            120            125

Lys Phe Met Lys Thr Asp Pro Glu Asp Pro Leu Trp Ile Ser Leu Leu
      130            135            140

Asn Cys Leu Gly Ser Ser Asp Arg Ala His Val Val Arg Ala Leu Trp
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Ala Leu Thr His Phe Ser Thr Glu Leu Asp Glu Pro Glu Ala Asn Arg
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<213> Aspergillus fumigatus
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<210> 144

<211> 1542

<212> DNA

<213> *Aspergillus fumigatus*

<400> 144

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<210> 145

<211> 1482

<212> DNA

<213> *Aspergillus fumigatus*

<400> 145

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<210> 146

<211> 493

<212> PRT

<213> *Aspergillus fumigatus*

<400> 146

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Leu Asp Ser Thr Asn Ala Phe Glu Gly Pro Glu Lys Leu Leu Glu Val
      35              40              45

Trp Phe Ala Pro Ser Ala Gln Glu Leu Gly Pro Ala Gln Pro Ala Gly
      50              55              60

Leu Lys Ala Val Pro Glu Glu Ile Trp Lys Asp Met Leu Asp Leu Val
      65              70              75              80

Asn Cys Gln Val Leu Ser Ile Val Ser Ser Glu Asp Val Asp Ala Tyr
      85              90              95

Leu Leu Ser Glu Ser Ser Met Phe Val Trp Pro His Lys Leu Ile Leu
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Lys Thr Cys Gly Thr Thr Thr Leu Leu Ser Gly Leu Pro Arg Ile Leu
      115             120             125

Glu Ile Ala Ala Leu Phe Gly Gly Phe Pro Lys Ser Thr Ala Pro Ser
      130             135             140

Arg Gly Ile Ser Val Ala Ala Ala Pro Tyr Arg Val Phe Tyr Ser Arg
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			180					185					190		
Tyr	Met	Ile	Gly	Lys	Met	Asn	Gly	Glu	His	Trp	Tyr	Leu	Tyr	Leu	Thr
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Glu	Pro	His	Thr	Met	Leu	Thr	Pro	Pro	Thr	Ser	Pro	Gly	Ala	Lys	Thr
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Glu	Phe	Thr	Glu	Thr	Glu	Thr	Lys	Val	Leu	Ser	Val	Pro	Gln	Gly	Ala
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		275					280					285			
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Pro	Lys	Glu	Lys	Tyr	Pro	Asp	Ser	Arg	Ile	Asp	Ala	Tyr	Leu	Phe	Thr
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Pro	Cys	Gly	Phe	Ser	Ala	Asn	Gly	Val	Ile	Pro	Pro	Pro	Glu	Gly	Lys
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385					390					395					400
Thr	Thr	Ala	Gly	Ile	Ile	Lys	Gln	Val	Val	Asp	Ile	Phe	Lys	Pro	Gly
				405					410					415	
Arg	Phe	Ser	Val	Thr	Leu	Phe	Glu	Ala	Lys	Pro	Ala	Leu	Ser	Gln	Val
			420					425					430		
Glu	Asp	Glu	Trp	Lys	Glu	Ala	Lys	Tyr	Leu	Ala	Ala	Arg	Arg	Thr	Ala
		435					440					445			
Lys	Met	Glu	His	Val	Glu	Gly	Tyr	Arg	Arg	Val	Asp	Arg	Ile	Val	His
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Asp Leu Asp Gly Tyr Glu Leu Val Phe Arg Tyr Tyr Glu Arg Leu Asp
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Trp Lys Gly Gly Ala Pro Arg Leu Gly Glu Glu Arg Ser
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<210> 147

<211> 1637

<212> DNA

<213> *Aspergillus fumigatus*

<400> 147

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1637

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<210> 148

<211> 637

<212> DNA

<213> *Aspergillus fumigatus*

<400> 148

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<210> 149
 <211> 420
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 149
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<210> 150
 <211> 139
 <212> PRT
 <213> *Aspergillus fumigatus*

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 35 40 45
 Lys Ile Ala Gly Tyr Thr Thr His Leu Met Lys Arg Ile Gln Arg Gly
 50 55 60
 Pro Val Arg Gly Ile Ser Phe Lys Leu Gln Glu Glu Glu Arg Glu Arg
 65 70 75 80
 Lys Asp Gln Tyr Val Pro Glu Val Ser Ala Leu Asp Val Ser Gln Thr
 85 90 95
 Glu Ser Gly Gln Leu Asp Val Asp Ala Asp Thr Lys Asp Leu Leu Lys
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<210> 151
 <211> 2037
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 151

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<210> 152

<211> 1037

<212> DNA

<213> *Aspergillus fumigatus*

<400> 152

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gattcacaat ggtagtgagg attatgctga ctgaattata gtgtcgggaa gactctggtc 360
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tcgctggctg acctgcagaa tgatgaagac catgctttcc gcaagggttaa gcttcgtgtg 480
gacgagggtt agggcaagaa ctgtttgacc aacttccacg gtcttgattt cacaaccgac 540
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acgaccgatg attatctcct tcggcttttt gctatcgctt tcaccaagag acgcccgaac 660
cagattaaga agaccacata tgctcgttct tctcaaattc gtgccatccg caagaagatg 720
attgaaatca tgcagaggga ggcagccagc tgctctctcg ctgagctcac tcacaagctc 780
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aatgtgtgtg accctgttat tcttactcgg gatgaagact aactgcaatc taggtccata 900

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ttcgcaaggt caagcttctt aaggctccca agttcgacct ggggtgactg ctgaatctgc 960
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<210> 153
<211> 771
<212> DNA
<213> Aspergillus fumigatus

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<400> 153
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agagatgtcg ggaagactct ggtcaaccgc accagtggtc tcaagaacgc caatgactcc 180
ctgaagggtc gaatcttcga ggtctcgctg gctgacctgc agaatgatga agaccatgct 240
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cacggtcttg atttcacaac cgacaaattg cgatccctcg tgcgcaagtg gcagtcgctg 360
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gccttcacca agagacgccc gaaccagatt aagaagacca catatgctcg ttcttctcaa 480
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acccagggaa tctatccttt gcagaatgtc catattcgca aggtcaagct tcttaaggct 660
cccaagttcg acctgggtgc actgctgaat ctgcacgggtg aatctacaac cgatgataag 720
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<210> 154
<211> 256
<212> PRT
<213> Aspergillus fumigatus

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<400> 154
Met Ala Val Gly Lys Asn Lys Arg Leu Ser Lys Gly Lys Lys Gly Val
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Lys Lys Arg Thr Val Asp Pro Phe Ser Arg Lys Asp Glu Tyr Ser Val
      20              25              30

Lys Ala Pro Ser Thr Phe Gln Ile Arg Asp Val Gly Lys Thr Leu Val
      35              40              45

Asn Arg Thr Ser Gly Leu Lys Asn Ala Asn Asp Ser Leu Lys Gly Arg
      50              55              60

Ile Phe Glu Val Ser Leu Ala Asp Leu Gln Asn Asp Glu Asp His Ala
      65              70              75              80

Phe Arg Lys Val Lys Leu Arg Val Asp Glu Val Gln Gly Lys Asn Cys
      85              90              95

Leu Thr Asn Phe His Gly Leu Asp Phe Thr Thr Asp Lys Leu Arg Ser
      100             105             110

Leu Val Arg Lys Trp Gln Ser Leu Ile Glu Ala Asn Val Thr Val Lys
      115             120             125

Thr Thr Asp Asp Tyr Leu Leu Arg Leu Phe Ala Ile Ala Phe Thr Lys
      130             135             140

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Arg Arg Pro Asn Gln Ile Lys Lys Thr Thr Tyr Ala Arg Ser Ser Gln
 145 150 155 160
 Ile Arg Ala Ile Arg Lys Lys Met Ile Glu Ile Met Gln Arg Glu Ala
 165 170 175
 Ala Ser Cys Ser Leu Ala Gln Leu Thr His Lys Leu Ile Pro Glu Val
 180 185 190
 Ile Gly Arg Glu Ile Glu Lys Ala Thr Gln Gly Ile Tyr Pro Leu Gln
 195 200 205
 Asn Val His Ile Arg Lys Val Lys Leu Leu Lys Ala Pro Lys Phe Asp
 210 215 220
 Leu Gly Ala Leu Leu Asn Leu His Gly Glu Ser Thr Thr Asp Asp Lys
 225 230 235 240
 Gly His Lys Val Glu Arg Glu Phe Lys Glu Gln Val Leu Glu Ser Val
 245 250 255

<210> 155

<211> 1819

<212> DNA

<213> *Aspergillus fumigatus*

<400> 155

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tgaggattga agatggggcca ggtcaatttg ggatgttcgt tgtgggacta ggggtttttt 180
ctgtgttggg gcggtcacgc tgcggctggg ctaagcgggc acgtgactgt ggctgactgc 240
ctggtgacgc ccccccccg aggaaccccc aaccggcagc cagataggct cgggaggatc 300
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cggctggatg actccgtcgc tgatttagca ttgtgatcca cgatttatgt ttcatttctg 420
gggcgcgggt ttactaccat cacttttgtc actaccatca cttttatact gagtttctga 480
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agcaagcccc ttcgcttgag actcaggtac ggaactcgaa actacgctat aatgaggctt 600
tactcgtgat ttggatgttg acaataatgt tcctagaccg agagtctgtt tcacacctat 660
gcgcagtatg catcgatgac gaagctgcct ccgaaaccct cagaagaaga acaacggatt 720
gaatcgcaac tgaaggatct tcttgaaaag gtgtgcactt tgaggccctc tagtccagcc 780
caacagacga tcatgctgac acgatccgat catagcgtga agccctcatc tcccagctct 840
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tagatgaaag ccataacatg atagatgggt tcctaagcca ggcgtatgca atcaacgaga 1140
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ataaggtacc aggaatgaat gcattgattg gtaagattgg gacgaagagg agacgtgacg 1260
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cagactgctg tagccctagg gtcaccgca tgatcactct tggtttcgga cttgcggatt 1560

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```

caccttggtt tcttcccgcc cattcctcag ccggtagctt cgactcgaga ctgattcttc 1620
tctcctggat taatttgcga acccgttgt tcaatccgtc tagctcgctt tctctgccc 1680
gcccgtacc cgcccatcgg atgcgacagt tctcgtccag cagatagaca taaccaactt 1740
tactgttcat cattccgatt gcttctttca acccatccgt aagaccttg cgcacaagga 1800
aataccgttc gtgctgctc                                     1819

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<210> 156

<211> 819

<212> DNA

<213> *Aspergillus fumigatus*

<400> 156

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acaataatgt tcctagaccg agagtctgtt tcacacctat gcgcagtatg catcgatgac 180
gaagctgcct ccgaaaccct cagaagaaga acaacggatt gaatcgcaac tgaaggatct 240
tcttgaaaag gtgtgcactt tgaggccctc tagtccagcc caacagacga tcatgctgac 300
acgatccgat catagcgtga agccctcatc tcccagctct cccgtctcct tgactccgaa 360
gccactctta ccgcactctgc cctgaaacag agcaatcttg cccgcaatcg cgaagtcttc 420
caggatcatc gccgcgaatt gcagcgcctg aacgccgcaa tcgccgagtc ccgcgaccga 480
gccaatcttc tgtctaactg ccgctccgac attgatgcct accgcaatc aaaccccgcc 540
gcggtgagg cagactacat gctcgaggag cggggtcgta tagatgaaag ccataacatg 600
atagatgggt tcctaagcca ggcgtatgca atcaacgaga gttttgggct acaacgtgaa 660
accctggcca gcatcaatcg ccgtatcgtc ggtgctgcca ataaggtagc aggaatgaat 720
gcattgattg gtaagattgg gacgaagagg agacgtgacg caatcatctt gggggctttc 780
atcggctttt gtttcttgat ggtgttcttc ttccgatga                                     819

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<210> 157

<211> 684

<212> DNA

<213> *Aspergillus fumigatus*

<400> 157

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ccgaaaccct cagaagaaga acaacggatt gaatcgcaac tgaaggatct tcttgaaaag 180
cgtgaagccc tcatctccca gctctcccg tctcttgact ccgaagccac tcttaccgca 240
tctgccctga aacagagcaa tcttgcccgc aatcgcgaa tccctccagga tcatcgccgc 300
gaattgcagc gcctgaacgc cgcaatcgcc gactcccgcg accgagccaa tcttctgtct 360
aacgtccgct ccgacattga tgccctaccgc aattcaaacc ccgccgcgcc tgaggcagac 420
tacatgctcg aggagcgggg tcgtatagat gaaagccata acatgataga tgggtgtccta 480
agccaggcgt atgcaatcaa cgagagtttt gggctacaac gtgaaaccct ggccagcatc 540
aatcgccgta tcgtcgggtg tgccaataag gtaccaggaa tgaatgcatt gatttggtaa 600
attgggacga agaggagacg tgacgcaatc atcttggggg ctttcatcgg cttttgtttc 660
ttgatggtgt tcttcttccg atga                                     684

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<210> 158

<211> 227

<212> PRT

<213> *Aspergillus fumigatus*

<400> 158

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Arg Ser Leu Glu Thr Gln Thr Glu Ser Leu Phe His Thr Tyr Ala Gln
 20 25 30
 Tyr Ala Ser Met Thr Lys Leu Pro Pro Lys Pro Ser Glu Glu Glu Gln
 35 40 45
 Arg Ile Glu Ser Gln Leu Lys Asp Leu Leu Glu Lys Arg Glu Ala Leu
 50 55 60
 Ile Ser Gln Leu Ser Arg Leu Leu Asp Ser Glu Ala Thr Leu Thr Ala
 65 70 75 80
 Ser Ala Leu Lys Gln Ser Asn Leu Ala Arg Asn Arg Glu Val Leu Gln
 85 90 95
 Asp His Arg Arg Glu Leu Gln Arg Leu Asn Ala Ala Ile Ala Glu Ser
 100 105 110
 Arg Asp Arg Ala Asn Leu Leu Ser Asn Val Arg Ser Asp Ile Asp Ala
 115 120 125
 Tyr Arg Asn Ser Asn Pro Ala Ala Ala Glu Ala Asp Tyr Met Leu Glu
 130 135 140
 Glu Arg Gly Arg Ile Asp Glu Ser His Asn Met Ile Asp Gly Val Leu
 145 150 155 160
 Ser Gln Ala Tyr Ala Ile Asn Glu Ser Phe Gly Leu Gln Arg Glu Thr
 165 170 175
 Leu Ala Ser Ile Asn Arg Arg Ile Val Gly Ala Ala Asn Lys Val Pro
 180 185 190
 Gly Met Asn Ala Leu Ile Gly Lys Ile Gly Thr Lys Arg Arg Arg Asp
 195 200 205
 Ala Ile Ile Leu Gly Ala Phe Ile Gly Phe Cys Phe Leu Met Val Phe
 210 215 220
 Phe Phe Arg
 225

<210> 159

<211> 2601

<212> DNA

<213> *Aspergillus fumigatus*

<400> 159

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 ttactgtttt cccaaacgaa tccattatta tttctttccc ttggagggtc cctactgtgg 180
 tcttggtgct gcaactcttg caagcccatt ggtccttgct ctgagcctat cacttgcgat 240
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 atccaccatt cggatattcc gcccatccaa agcgaacacc cctccttctg ctccaccatc 360
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 aacccccaaa gttgcccgtg atgtcacaaa atcgacctgg ggtgttctcg aatctgcgca 540

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<210> 160

<211> 1601

<212> DNA

<213> *Aspergillus fumigatus*

<400> 160

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ctttccgacc	atacagaagt	cgtccgcgag	aaggtccagg	atggactgac	aggggaaact	180
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tgtctcccca	ttcgttctag	tttgccgttt	gctgactacc	ctaccattgt	ctttcacaga	540
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cgcggtactt	taataaaactc	aaaacgacta	tgccaatggt	ggaagtcaag	ctgtatatct	660
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<210> 161

<211> 1185

<212> DNA

<213> *Aspergillus fumigatus*

<400> 161

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gtcggcaatg gatcggttgg tgtcgtcttt cagacgaaaa tgatgccaag cggcgaggat 180
gctgaccatta agagggtcct tcaagacaag cgcttcaaaa atcgagaact gcagattatg 240
cggattgttc gccatcctaa catcgtagaa ttgaaagcct tctattactc gaacggcgag 300
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gcgtcgcggt actttaataa actcaaaacg actatgcaa tggtggaagt caagctgtat 420
atctatcaat tgttccggtt cctggcatac atccattcac aaggcatctg ccaccgtgac 480
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tccacggggt gtgtgatggc tgaactcatg cttggtcagc cattgttccc tggagagtcg 720
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cgcaccatga acccaaaacta tatggagcac aaattccctc aaatcaagcc acaccattc 840
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ctcagagatc ccaatacgcg actgcccagc tctcggcacc ctgggtggcg tgctagagac 1020
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cggctggttc cccctcatgc acgcgccgct ctcgaggccc ggggggctaga cattgacaac 1140
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```

<210> 162

<211> 394

<212> PRT

<213> *Aspergillus fumigatus*

<400> 162

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Met Ser Gln Asn Arg Pro Gly Val Phe Ser Asn Leu Arg Met Gly Glu
  1             5             10             15

```

```

Val Val Arg Glu Lys Val Gln Asp Gly Leu Thr Gly Glu Thr Lys Glu
      20             25             30

```

```

Ile Ser Tyr Ser Gln Cys Lys Ile Val Gly Asn Gly Ser Phe Gly Val
    35             40             45

```

Val	Phe	Gln	Thr	Lys	Met	Met	Pro	Ser	Gly	Glu	Asp	Ala	Ala	Ile	Lys	50	55	60	
Arg	Val	Leu	Gln	Asp	Lys	Arg	Phe	Lys	Asn	Arg	Glu	Leu	Gln	Ile	Met	65	70	75	80
Arg	Ile	Val	Arg	His	Pro	Asn	Ile	Val	Glu	Leu	Lys	Ala	Phe	Tyr	Tyr	85	90	95	
Ser	Asn	Gly	Glu	Arg	Lys	Asp	Glu	Val	Tyr	Leu	Asn	Leu	Val	Leu	Glu	100	105	110	
Tyr	Val	Pro	Glu	Thr	Val	Tyr	Arg	Ala	Ser	Arg	Tyr	Phe	Asn	Lys	Leu	115	120	125	
Lys	Thr	Thr	Met	Pro	Met	Leu	Glu	Val	Lys	Leu	Tyr	Ile	Tyr	Gln	Leu	130	135	140	
Phe	Arg	Ser	Leu	Ala	Tyr	Ile	His	Ser	Gln	Gly	Ile	Cys	His	Arg	Asp	145	150	155	160
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Leu	Cys	Asp	Phe	Gly	Ser	Ala	Lys	Ile	Leu	Val	Glu	Asn	Glu	Pro	Asn	180	185	190	
Val	Ser	Tyr	Ile	Cys	Ser	Arg	Tyr	Tyr	Arg	Ala	Pro	Glu	Leu	Ile	Phe	195	200	205	
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Arg	Glu	Gln	Ile	Arg	Thr	Met	Asn	Pro	Asn	Tyr	Met	Glu	His	Lys	Phe	260	265	270	
Pro	Gln	Ile	Lys	Pro	His	Pro	Phe	Asn	Lys	Val	Phe	Arg	Arg	Ala	Pro	275	280	285	
His	Glu	Ala	Ile	Asp	Leu	Ile	Ser	Ala	Leu	Leu	Glu	Tyr	Thr	Pro	Thr	290	295	300	
Gln	Arg	Leu	Ser	Ala	Ile	Glu	Ala	Met	Cys	His	Pro	Phe	Phe	Asp	Glu	305	310	315	320
Leu	Arg	Asp	Pro	Asn	Thr	Arg	Leu	Pro	Asp	Ser	Arg	His	Pro	Gly	Gly	325	330	335	
Ala	Ala	Arg	Asp	Leu	Pro	Asn	Leu	Phe	Asp	Phe	Ser	Arg	His	Glu	Leu	340	345	350	

Ser Ile Ala Pro Ala Leu Asn Ser Arg Leu Val Pro Pro His Ala Arg
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<210> 163

<211> 2539

<212> DNA

<213> *Aspergillus fumigatus*

<400> 163

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2539

<210> 164

<211> 1539

<212> DNA

<213> *Aspergillus fumigatus*

<400> 164

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<210> 165

<211> 1539

<212> DNA

<213> *Aspergillus fumigatus*

<400> 165

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<210> 166

<211> 512

<212> PRT

<213> *Aspergillus fumigatus*

<400> 166

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Arg Pro Val Ala Val Arg Ser Phe Phe Ser Ser Ser Arg Leu Arg Ala
    35             40             45

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Gly Ile Ala Asp His Glu Ser Thr Pro Ser Thr Val Gln Lys Thr Tyr
    50             55             60

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```

Phe Ser Ala Asn Arg Thr Ala Asp Gly Leu Leu Ala Ser Leu Ser Ala
    65             70             75             80

```

```

Val Asn Ser Ser Pro Arg Ser Ile Ala Asp Asn Ala Leu Ser Gln Gly
      85             90             95

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```

Ala Ala Ser Ser Glu Ser Ile Thr Ser Gln Ser Thr Ser Gln Glu Leu
    100             105             110

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```

Pro His Arg Arg Arg Lys Arg Leu Lys Glu Glu Ala Ala Lys Asn Asn
    115             120             125

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Ala Ala Glu Thr Glu Leu Pro Pro Asp Ala Ser Ser Gln Leu Ser Thr
    130             135             140

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Leu Ser Ser Ala Leu Pro Ala Thr Ser Leu Arg Arg Lys Leu Ala Ala
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Phe Leu Ala Leu Thr Lys Pro Arg Leu Ser Phe Leu Ile Val Leu Thr
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Thr Thr Ser Ala Tyr Gly Met Tyr Pro Ile Ser Ser Leu Leu Thr Leu
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<210> 167

<211> 2679

<212> DNA

<213> *Aspergillus fumigatus*

<400> 167

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 <213> *Aspergillus fumigatus*

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<210> 169
 <211> 1629
 <212> DNA
 <213> *Aspergillus fumigatus*

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 ccgtcggagc ggactgagat agatcggctg gttgcagata tgggtagggt gctagcggga 660
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 ggacatgcgc ttcagcagtc cccctcgttc gcggagcgag tccgcatcat aggcagccgt 900
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gaagggctac cggcctctgt cgaatacatc atggattacc aggccgagta tccctcgatc 1020
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gcaagtctca agcgctggga tgacagttaa ccggccgcga acggttagtat cctgacacgg 1560
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<210> 170

<211> 542

<212> PRT

<213> *Aspergillus fumigatus*

<400> 170

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Asp Arg Ala Ala Met Arg Leu Gly Phe Ala Leu Arg Leu Ser Ser Pro
      20                      25                      30

Ala Pro Leu Phe Ser Thr Ala Pro Phe Arg Arg Gln Leu His Ala Ser
      35                      40                      45

Gly Val Arg Ser Ile Glu Pro Val Ile Phe Arg Asn Ser Leu Glu Lys
      50                      55                      60

Thr Leu Glu Ala His Arg Ser Ser Asn Arg Ala Ser Leu Ile Arg Lys
      65                      70                      75                      80

Val Ile Asn His Asp Cys Pro Ala Glu Thr Pro Pro Pro Ile Leu Pro
      85                      90                      95

Leu Glu Asn Arg Ala Gly His Asp Gln Ser Ser Gln Lys Ala Ser Ser
      100                     105                     110

Val Ser Asn Ala Glu Ser Glu Ser Pro Arg Ser Ser Ala Pro Ala Arg
      115                     120                     125

Arg Ala Gln Arg Lys Ala Arg Ser Pro Ser Gln Val Ala Thr Pro Gln
      130                     135                     140

Pro Gln Thr Thr Glu Tyr Pro Gln Leu Gln Trp His Ala Asp Glu Thr
      145                     150                     155                     160

Lys Gly Arg Pro Ala Gln Ser Pro Trp Leu Lys Tyr Leu Thr Thr Asp
      165                     170                     175

Trp Lys Thr Pro Asp Ala Val Ser Arg Leu Asp Ala Glu Ile Arg Ala
      180                     185                     190

Leu Glu Leu Tyr Met Thr Pro Thr Pro Ser Glu Arg Thr Glu Ile Asp
      195                     200                     205

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Arg	Leu	Val	Ala	Asp	Met	Gly	Arg	Leu	Leu	Ala	Gly	Ile	Val	Pro	Ser	210	215	220
Pro	Pro	Gln	Val	Thr	Gly	Ser	Trp	Arg	Thr	Arg	Phe	Ala	Leu	Ser	His	225	230	235
Ser	Gly	Leu	Asp	Phe	Val	Leu	Pro	Val	Pro	Asp	Ser	Asp	Arg	Ser	Thr	245	250	255
Arg	Asp	Val	Arg	Lys	Pro	Ser	Ala	Thr	Arg	Pro	Lys	Val	Leu	Gln	Thr	260	265	270
Tyr	Lys	Lys	Leu	Leu	His	Glu	Val	Gly	His	Ala	Leu	Gln	Gln	Ser	Pro	275	280	285
Ser	Phe	Ala	Glu	Arg	Val	Arg	Ile	Ile	Gly	Ser	Arg	Phe	Pro	Val	Leu	290	295	300
Ser	Ala	Ile	His	Arg	Pro	Thr	Gly	Arg	Leu	Leu	Gln	Phe	His	Cys	Gly	305	310	315
Glu	Gly	Leu	Pro	Ala	Ser	Val	Glu	Tyr	Ile	Met	Asp	Tyr	Gln	Ala	Glu	325	330	335
Tyr	Pro	Ser	Ile	Arg	Pro	Leu	Tyr	Val	Thr	Ala	Arg	Leu	Ile	Leu	Glu	340	345	350
Ala	Arg	Gly	Arg	Tyr	Gly	Arg	Thr	Gln	Met	Ser	Ile	Glu	Ser	Asp	Ala	355	360	365
Leu	Val	Met	Leu	Leu	Val	Ala	Phe	Leu	Lys	Met	Asn	His	Gly	Arg	Phe	370	375	380
Gln	Arg	Pro	Asp	Cys	Leu	Gly	Glu	Gln	Leu	Ile	Ala	Phe	Leu	Arg	Ala	385	390	395
Tyr	Gly	Ser	Asp	Ile	Asp	Leu	Thr	Thr	Thr	Gly	Val	Ser	Val	Asp	Pro	405	410	415
Pro	Ser	Trp	Phe	Asn	Ala	Ser	Thr	Val	Lys	Arg	Ala	Ser	Ala	Leu	Tyr	420	425	430
Ala	Pro	Asp	Asp	Leu	Pro	Ala	His	Leu	Arg	Gly	Gln	Arg	Ser	Leu	Ile	435	440	445
Ser	Leu	Lys	Arg	Thr	Ala	Ala	Ala	Arg	Arg	Asn	Leu	Pro	Ala	Ala	Ser	450	455	460
Arg	Leu	Cys	Val	Gln	Asp	Pro	Thr	Asn	Tyr	Met	Asn	Asp	Leu	Gly	Arg	465	470	475
Ser	Cys	Val	Arg	Thr	Leu	Glu	Leu	Gln	His	Thr	Phe	Ser	Leu	Ala	His	485	490	495
Asp	Arg	Leu	Gly	Ala	Ser	Leu	Lys	Arg	Trp	Asp	Asp	Ser	Glu	Pro	Ala	500	505	510

Ala Asn Val Ser Ile Leu Thr Arg Ala Leu Gln Ala Asn Phe Ser Asp
 515 520 525

Phe Glu Asn Leu Arg Ala Lys Ser Leu Lys Leu Asn Ala Thr
 530 535 540

<210> 171

<211> 1573

<212> DNA

<213> *Aspergillus fumigatus*

<220>

<221> modified_base

<222> (683)

<223> a, c, g, t, unknown or other

<400> 171

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cagctagctt cacttgagat atcacaagat gctttggtcg gcctgccacg aggtcttgct 180
ccatgtcaac caccaggatt cagtctctgc ctcatctcag tccaggcgag gtttctttgc 240
tggatcttgc ggctgatgac cctcgcgatg tgggtgtccct gtccgacaag gaagcgttga 300
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ctggggacaa tctggatgag caacttgcaa tcgcagaacg tgagcttctc gaggcaaggg 540
ccacgtacac ggtcaggaga aaggccacca gtactgtcct gatgactgat ccaacattaa 600
aagctgttca cttgaaagct atatcacctg ttgaaagggt ttacctcctt tcagtttatg 660
cgagcatttc aattctgcat tcncctatac taacgcttca tagagctctt ctaccctggg 720
tcaaccggcg tgatgtgttg tctttggcac atgagaacct aatgaatgcg cacaacgcga 780
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<210> 172

<211> 573

<212> DNA

<213> *Aspergillus fumigatus*

<220>

<221> modified_base

<222> (183)

<223> a, c, g, t, unknown or other

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atatcacctg ttgaaagggt ttacctcctt tcagtttatg cgagcatttc aattctgcat 180
tcncctatac taacgcttca tagagctctt ctacccttgg tcaaccggcg tgatgtgttg 240
tctttggcac atgagaacct aatgaatgcg cacaacgcga ctttgaggga actatccaat 300
ttagaagtac aaaatctaga gctacaccag aggaatcaag agctagcgcg gcagcttctt 360
gagtccgcga aggatgatga ttcattggaga gaagcactgg atgatgacga cctcaaggca 420
caacttgagc agctagaggc cgatcgcaaa aagagcaaat caagatggga agtcatgaaa 480
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<210> 173
<211> 573
<212> DNA
<213> Aspergillus fumigatus

<220>
<221> modified_base
<222> (183)
<223> a, c, g, t, unknown or other

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<400> 173
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tcncctatac taacgcttca tagagctctt ctacccttgg tcaaccggcg tgatgtgttg 240
tctttggcac atgagaacct aatgaatgcg cacaacgcga ctttgaggga actatccaat 300
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gagtccgcga aggatgatga ttcattggaga gaagcactgg atgatgacga cctcaaggca 420
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<210> 174
<211> 190
<212> PRT
<213> Aspergillus fumigatus

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<400> 174
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Thr Val Arg Arg Lys Ala Thr Ser Thr Val Leu Met Thr Asp Pro Thr
      20             25             30

Leu Lys Ala Val His Leu Lys Ala Ile Ser Pro Val Glu Arg Phe Tyr
      35             40             45

Leu Leu Ser Val Tyr Ala Ser Ile Ser Ile Leu His Ser Pro Ile Leu
      50             55             60

Thr Leu His Arg Ala Leu Leu Pro Leu Val Asn Arg Arg Asp Val Leu
      65             70             75             80

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Ser Leu Ala His Glu Asn Leu Met Asn Ala His Asn Ala Thr Leu Arg
 85 90 95
 Glu Leu Ser Asn Leu Glu Val Gln Asn Leu Glu Leu His Gln Arg Asn
 100 105 110
 Gln Glu Leu Ala Arg Gln Leu Leu Glu Ser Ala Lys Asp Asp Asp Ser
 115 120 125
 Trp Arg Glu Ala Leu Asp Asp Asp Asp Leu Lys Ala Gln Leu Glu Gln
 130 135 140
 Leu Glu Ala Asp Arg Lys Lys Ser Lys Ser Arg Trp Glu Val Met Lys
 145 150 155 160
 Ser Val Ala Ser Ala Ile Val Val Gly Ser Gly Val Asn Trp Ala Glu
 165 170 175
 Asp Asp Glu Leu Thr Ala Leu Val Ile Asp Glu Ser Asp Asp
 180 185 190

<210> 175

<211> 2593

<212> DNA

<213> *Aspergillus fumigatus*

<400> 175

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gcttcgactg gaaattcgga gatcgccata tatttgagtt atgtaagcac cgccgcaggc 180
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taatacatat	caagtcaagg	caatcgccctc	ccgcctgttc	aatttgccgc	cttaccagtg	1980
ccgactagtc	tgggagacca	acgagttaga	ccctattcat	caggagaaaa	aggacgatgg	2040
agacgattgg	gtagtgatg	aggatgaagc	cacagctatt	ggattggggg	agagtaacaa	2100
gctcacaccg	gcgacggagg	atggaaaagt	catcagaaga	gaggttgagc	tcctggattc	2160
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<210> 176

<211> 1974

<212> DNA

<213> *Aspergillus fumigatus*

<400> 176

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cccacgcggg	ggaagcattc	tggagaacac	aacggagtga	gatattttac	atgtatgaaa	180
gtattttcaa	gactggatag	agcggattga	ctgacttgaa	cggaaggtag	aaggaaacac	240
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aagttcatca	gaagagaggt	tgaactcctg	gattcaacgc	gagacatagg	cttttggttc	1920
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<210> 177
 <211> 1830
 <212> DNA
 <213> *Aspergillus fumigatus*

<400> 177
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<210> 178
 <211> 609
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 178
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 Trp Leu Gly Val Glu Trp Asp Asp Pro Thr Arg Gly Lys His Ser Gly
 35 40 45
 Glu His Asn Gly Val Arg Tyr Phe Thr Cys Arg Arg Lys His Pro Thr
 50 55 60

150

Ala	Gly	Ser	Phe	Val	Arg	Pro	Ser	Arg	Arg	Thr	Asp	Arg	Pro	Arg	Gly	65	70	75	80
Phe	Leu	Glu	Ala	Val	Arg	His	Lys	Tyr	Ala	Ser	Glu	Phe	Gln	Glu	Glu	85	90	95	
Leu	Ala	Arg	Gln	Gln	Ser	Gly	Glu	Val	Ser	Ala	Ala	Arg	Glu	Ile	Ile	100	105	110	
Lys	Phe	Ser	Ser	Lys	Val	Val	Glu	Glu	Val	Gly	Phe	Asp	Lys	Ile	Arg	115	120	125	
Lys	Lys	Leu	Ala	Glu	Leu	Gln	Glu	Leu	Lys	Ile	Val	Leu	Leu	Asp	Arg	130	135	140	
Leu	Cys	Ile	Ala	Gly	Val	Leu	Pro	His	Arg	Ala	Ser	Leu	His	Glu	Leu	145	150	155	160
Ala	Glu	Ala	Cys	Lys	Glu	Ile	Glu	Gln	Thr	Cys	Pro	Lys	Ile	Val	Asp	165	170	175	
Leu	Asp	Leu	Ser	Tyr	Asn	Leu	Leu	Glu	Ser	Trp	Val	Asp	Ile	Ala	Asn	180	185	190	
Ile	Cys	Gln	Gln	Leu	Lys	Arg	Leu	Lys	Thr	Leu	Lys	Leu	Met	Leu	Val	195	200	205	
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Ser	Arg	Ser	Ser	Thr	Gly	Gly	Ser	Asp	Ile	Arg	Arg	Tyr	His	Asn	Thr	225	230	235	240
Thr	Leu	Gly	Arg	Asp	Ser	Thr	Arg	Met	Gly	Arg	Gly	Met	Leu	His	Lys	245	250	255	
Ala	Thr	Ala	Trp	Leu	Pro	Ile	Thr	Gln	Ile	Leu	Thr	Pro	Ile	Thr	Asp	260	265	270	
Thr	Ile	Thr	Thr	Leu	Thr	Leu	Glu	Asn	Asn	Asp	Ile	Ser	Ser	Leu	Ser	275	280	285	
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Arg	Glu	Asn	Arg	Ile	Gly	Lys	Val	Tyr	Ala	Ser	Gly	Met	Glu	Gly	Asn	305	310	315	320
Ser	Leu	Gln	Phe	Ser	Glu	Asn	Leu	Arg	Ser	Val	Asp	Leu	Ser	Arg	Asn	325	330	335	
Asn	Ile	Asp	Ser	Trp	Leu	Phe	Val	Asn	Glu	Leu	Gln	Arg	Val	Phe	Pro	340	345	350	
Gly	Leu	Gln	Ser	Leu	Arg	Ile	Ser	Gly	Asn	Pro	Leu	Tyr	Asp	Lys	Pro	355	360	365	

Val Ala Pro Ser Asn Val Thr Asn Leu Pro Glu Lys Pro Met Thr Val
 370 375 380
 Asp Glu Ala Tyr Met Leu Thr Leu Ser Arg Leu Ala Ser Ile Gln Thr
 385 390 395 400
 Leu Asn Tyr Ser Lys Ile Thr Ser Gln Asp Arg Ser Asn Gly Glu Leu
 405 410 415
 Tyr Tyr Leu Ser Leu Ile Gly Lys Glu Leu Ser Ala Tyr Pro Glu Ser
 420 425 430
 Ala Glu Arg Glu Ile Leu Ala Thr His Pro Arg Tyr Gln Glu Leu Cys
 435 440 445
 Glu Lys Tyr Gly Ala Pro Thr Ile Arg Arg Ala Glu Leu Ala Gly Ala
 450 455 460
 Ala Val Asn Pro Arg Ser Val Ala Ala Arg Val Val Lys Leu Ala Phe
 465 470 475 480
 Cys Leu His Ser Ser Val Ser Ser Gly Ala Asn Gln Glu Gln Phe Arg
 485 490 495
 Val Gln Lys Ile Pro Arg Ser Phe Asn Thr Tyr Gln Val Lys Ala Ile
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 Ala Ser Arg Leu Phe Asn Leu Pro Pro Tyr Gln Cys Arg Leu Val Trp
 515 520 525
 Glu Thr Asn Glu Leu Asp Pro Ile His Gln Glu Lys Lys Asp Asp Gly
 530 535 540
 Asp Asp Trp Asp Ser Asp Glu Asp Glu Ala Thr Ala Ile Gly Leu Gly
 545 550 555 560
 Glu Ser Asn Lys Leu Thr Pro Ala Thr Glu Asp Gly Lys Phe Ile Arg
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 Arg Glu Val Glu Leu Leu Asp Ser Thr Arg Asp Ile Gly Phe Trp Phe
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 Gln Pro Asp Thr Val Glu Ala Arg Ile Arg Val Glu Val Ala Thr Ser
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Asn

<210> 179

<211> 1867

<212> DNA

<213> *Aspergillus fumigatus*

<400> 179

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 gtagaacctc ttacgcaagc gcctgtggcc tctgttaccc gaatggattt agaggccttc 180

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<210> 180

<211> 963

<212> DNA

<213> *Aspergillus fumigatus*

<400> 180

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gaacggaagc aaagagaaac tcagaaggcg aaggatgaag tcgagcgatt aaggcaaac 300
gtcgaggaa aaccagggtg aaaagacagc ggcgcaacag cttggaaaca cgcctcggct 360
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<210> 181
 <211> 876
 <212> DNA
 <213> *Aspergillus fumigatus*

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 tccctggaag agagaaagaa gcagatagcg cagctggcag agatgggaat tgctatcccg 360
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<210> 182
 <211> 291
 <212> PRT
 <213> *Aspergillus fumigatus*

<400> 182
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 35 40 45
 Arg Glu Asn Glu Arg Lys Gln Arg Glu Thr Gln Lys Ala Lys Asp Glu
 50 55 60
 Val Glu Arg Leu Arg Gln Thr Val Ala Gly Lys Pro Gly Ala Lys Asp
 65 70 75 80
 Ser Gly Ala Thr Ala Trp Lys His Ala Ser Ala Ala Pro Pro Pro Ala
 85 90 95
 Glu Arg Pro Val Ser Leu Glu Glu Arg Lys Lys Gln Ile Ala Gln Leu
 100 105 110
 Ala Glu Met Gly Ile Ala Ile Pro Asp Glu Tyr Arg Gly Glu Leu Ala
 115 120 125
 Leu Ala Gly Glu Trp Gln Thr Val Ser Glu Arg Val Ile Arg Pro Asp
 130 135 140
 Asp Asp Thr Glu Glu Gly Lys Pro Gly Ser Ser Ile Gly Val Arg Lys
 145 150 155 160

Arg Lys Met Glu Gly Asp Glu Glu Glu Gln Glu Ala Arg Gln Glu Ala
 165 170 175
 Glu Arg Phe Val Ser Gln Gly Trp Gly Ser Arg Thr Arg Gln Tyr Pro
 180 185 190
 Gly Glu Gln Ser Asp Ala Asp Leu Asp Ala Leu Leu Asn Ser Thr Lys
 195 200 205
 Asp Val Lys Lys Val Lys Leu Ser Ala Pro Asp Glu Gly Ser Lys Glu
 210 215 220
 Lys Ala Ser Lys Glu Gly Ala Thr Pro Ser Asn Asp Thr Asp Gln Ala
 225 230 235 240
 Ala Ala Gln Glu Ser Glu Leu Pro Ser Val Lys Ser Glu Gly Lys Glu
 245 250 255
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<210> 183

<211> 2193

<212> DNA

<213> *Aspergillus fumigatus*

<400> 183

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<210> 184

<211> 1448

<212> DNA

<213> *Aspergillus fumigatus*

<400> 184

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<210> 185

<211> 1395

<212> DNA

<213> *Aspergillus fumigatus*

<400> 185

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<210> 186

<211> 464

<212> PRT

<213> *Aspergillus fumigatus*

<400> 186

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Asp Pro Ser Ser Pro Ser Gly Pro Asn Asp Gln Pro Glu Ala Lys Arg
      20              25              30

Pro Ala Leu Asp Lys Val Val Lys Gly Asn Glu Ser Glu Thr Tyr Thr
      35              40              45

Asp Ala Lys Ala Glu Pro Ser Ala Ala Pro Ser Ala Thr Ala Asp Gly
      50              55              60

Gln Gly Asp Thr Val Val Pro Asp Ala Pro Asn Gly Lys Gly Ala Ser
      65              70              75              80

Thr Glu Thr Gln Pro Ile Gln Ser Thr Ala Ser His Gly Glu Arg Ala
      85              90              95

Thr Ser Gln Pro Glu Gln Gln Arg Pro Gln Asp Glu Ser Ser Trp Ile
      100             105             110

His Ile Arg Ala Val Ile Ser Ser Gln Glu Ala Ala Thr Val Ile Gly
      115             120             125

Lys Gly Gly Glu Asn Val Ser Gln Ile Arg Arg Leu Ser Gly Ala Lys
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Cys Thr Val Ser Asp Tyr Ser Arg Gly Ala Val Glu Arg Ile Leu Thr
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Val	Ser	Gly	Pro	Gln	Asp	Ala	Val	Ala	Lys	Ala	Phe	Gly	Leu	Ile	Ile	
				165					170					175		
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Lys	Thr	Tyr	Pro	Leu	Arg	Leu	Leu	Ile	Pro	His	Leu	Leu	Ile	Gly	Ser	
		195					200					205				
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	210					215					220					
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Arg	Ser	Leu	Val	Ile	Leu	Gly	Val	Ala	Asp	Ser	Val	His	Ile	Ala	Thr	
				245					250					255		
Tyr	Tyr	Val	Ala	Val	Thr	Leu	Val	Glu	Gln	Leu	Thr	Glu	Arg	Phe	Gly	
			260					265					270			
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				325					330					335		
Gln	Pro	Ala	Pro	Ala	Pro	Val	Ala	Gln	Pro	Ala	Leu	His	Tyr	Gly	Ala	
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Tyr	Gly	Ala	Pro	Gln	Pro	Ala	Gln	Ala	Arg	Gly	Ala	Pro	Thr	Pro	Ala	
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Thr	Pro	Val	Gly	Gly	Val	Met	Pro	Gly	Gln	Pro	Leu	Thr	Gln	Gln	Ile	
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Tyr	Ile	Pro	Asn	Asp	Met	Val	Gly	Ala	Ile	Ile	Gly	Lys	Gly	Gly	Ala	
				405					410					415		
Lys	Ile	Asn	Glu	Ile	Arg	His	Leu	Ser	Gly	Ser	Val	Ile	Lys	Ile	Asn	
			420					425					430			
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 <211> 2121
 <212> DNA
 <213> *Aspergillus fumigatus*

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 <211> 1143
 <212> DNA
 <213> *Aspergillus fumigatus*

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<210> 189

<211> 1035

<212> DNA

<213> *Aspergillus fumigatus*

<400> 189

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<210> 190

<211> 344

<212> PRT

<213> *Aspergillus fumigatus*

<400> 190

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      20           25           30

Ala Asn Phe Asp Ala Tyr Asn Arg Lys Leu Asp Glu Thr Leu Ala Glu
      35           40           45

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Leu Gln Ala Gln Val Lys Arg His Glu Asp Glu Leu Arg Lys Phe Ala
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 Gln Ile Gly Ala Asp Pro Trp Ala Arg Ile Ser Glu Val Arg Arg Ala
 65 70 75 80
 Lys Lys Ala Tyr Asp Ser Leu Leu Gln Ser Glu Thr Arg Leu Pro Ser
 85 90 95
 Pro Gly Ser Pro Leu Pro Ser Leu Leu Ala Val Asp Glu Ala Ser Arg
 100 105 110
 Leu Val Lys Glu Ser Lys Thr Ser Ile Ser Leu Thr Ala Glu Lys Leu
 115 120 125
 Ser Ala Asp Arg Gln Arg Leu Lys Ala Glu Glu Ala Asn Leu Arg Asp
 130 135 140
 Ala Gln Leu Ile Lys Asp Gly Leu Glu Lys Arg Ile Glu Arg Leu Asn
 145 150 155 160
 Ala Glu Lys Ser Ser Gln Val Gln Lys Thr Pro Ala Gln Leu Ala Tyr
 165 170 175
 Asp Leu Val Lys Glu Gln Gln Glu Lys Ile Glu Arg Leu Asp Thr Thr
 180 185 190
 Thr Glu Glu Leu Lys Ser Ser Leu Tyr Lys Phe Val Glu Asp Thr Leu
 195 200 205
 Ala Pro Met Leu Ala Ala Glu Asn Leu Gly Gly Pro Thr Val Gly Asp
 210 215 220
 Ala Leu Glu Ile Ser Asp Thr Thr Leu Lys Ala Gly Tyr Thr Ser His
 225 230 235 240
 Gly Lys Pro Lys Lys Pro Lys Thr Pro Ala Val Gly Thr Ser Asp Ser
 245 250 255
 Gly Gln Gln Arg Ile Asp Glu Leu Val Arg Arg Gln Thr Ala Gln Glu
 260 265 270
 Gly Asn Glu Gln Ala Thr Leu Leu Asn Lys Arg Glu Ala Ala Ala Ala
 275 280 285
 Glu Met Arg Ala Leu Leu Thr Ala Leu Leu Asp Ala Asp Tyr Ser Tyr
 290 295 300
 Val Asp Leu Pro His Glu Ser Ala Ala Ser Arg Phe Leu Val Arg Ala
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 <211> 2000
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 <213> *Aspergillus fumigatus*

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 <211> 4336
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 <213> *Aspergillus fumigatus*

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<212> DNA

<213> *Aspergillus fumigatus*

<400> 193

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<210> 194

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<213> *Aspergillus fumigatus*

<400> 194

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<210> 195

<211> 1059

<212> PRT

<213> *Aspergillus fumigatus*

<400> 195

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<213> *Aspergillus fumigatus*

<400> 196

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